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COMPUTERWORLD

Pioneers moving nets to fast ATM technology

BY JOANIE M. WEXLER
CW STAFF

NEW YORK — The arrival of scalable, lightning-fast switches that could eventually replace corporatewide network infrastructures officially kicked in last week with the introduction of standards-based products from Adaptive Corp.

The Redwood City, Calif., subsidiary of Network Equipment Technologies, Inc. rolled out an Asynchronous Transfer Mode local-area network switch and corresponding workstation adapter cards at customer site Bear, Stearns & Co. The brokerage firm, a division of the U.S. Air Force and Texas Instruments, Inc. have committed to all-out shifts to the gigabit-speed-capable technology, which is touted for its ability to expand limitlessly in direct proportion to ever-rising computer speeds.

A vendor/user forum is building ATM as the eventual glue that will eliminate the boundaries between LAN and wide-area networks to create seamless enterprise networks.

The technology is also hailed for its ability to meld the varying characteristics of voice, video and data traffic and for its secure, point-to-point nature. This capability is not inherent in any of today's shared-bandwidth, data-only LANs, including the still-emerging, 100M bit/sec.

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Wiretap snares alleged hackers

FBI says hacking no joke; notes theft of credit reports, database invasions

BY JAMES DALY
and THOMAS HOFFMAN
CW STAFF

NEW YORK — Last week's indictment of some of the most notorious and self-promoting names in the computer hacker community signals a newfound aggressiveness on the part of frustrated federal law enforcement agents.

A two-year investigation snared five defendants, ranging in age from 18 to 22, in the government's first use of court-authorized wiretaps to monitor voice conversations and data transmissions of computer hackers.

The defendants are charged with breaking into computer systems at several regional telephone companies, Fortune 500 firms such as Martin Marietta Corp., universities and credit-reporting agencies such as TRW, Inc., which reportedly had 176 consumer credit reports stolen and sold to private investigators (see story page 14).

Hardest hit was St. Louis-based Southwestern Bell, which had to spend $370,000 to locate corrupted programs and install new security devices, according to the indictment.

Serious repercussions

The charges were the result of a joint investigation by the U.S. Attorney's Office, the Secret Service and the FBI. The 11-count indictment accuses the five defendants of computer fraud, computer tampering, wire fraud, illegal wiretapping and conspiracy.

If convicted, they face up to five years in prison for each count, for a total of 55 years, plus a maximum fine of $250,000 for each count.

Agents expressed concern that the penetration of some of the country's most secure data networks by young men barely out of high school may have started out as a round of one-upmanship to see who could get into the most sophisticated systems as well as harass others.

"This is no game, and we want them to know that," FBI special agent Richard DeFilippo said. "We're not going to sit by

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STUMPING FOR TECHNOLOGY

Industry weighs candidates' posture on high-tech policy

BY GARY H. ANTHES
CW STAFF

As the Democratic National Convention gets under way today in New York, creators and users of information technology will look closely at the candidates for clues as to who is most likely to meet their business and technology agendas. So far, many have said they are disappointed with the record of President Bush, wary of Arkansas Gov. Bill Clinton and intrigued by fellow techno-businessman Ross Perot.

"The watchword [on technology] for Bush is 'reluctance,' and with Perot and Clinton it's 'enthusiasm,' " said Michael Maibach, director of government affairs at Intel Corp. and until recently a Republican candidate for Congress.

Users and other high-tech executives said they want a strong federal technology policy that is driven by industry, not government. They want tax incentives to stimulate investment, more

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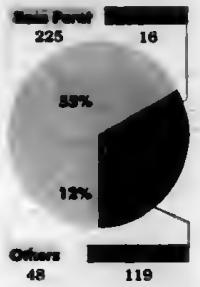
Home boy

More than half of 408 member executives responding to a recent American Electronics Association survey expressed support for Ross Perot



Source: American Electronics Association

NEW PRODUCT IN-SITE

RISC features in a PC package

Evaluators at user firms report IBM's ES/6000 Model 220 is faster and cheaper than many of its workstation competitors, but its PC attributes make it an unconventional choice for many companies. See New Product In-Site, page 38.

Networking:	4
Performance:	4
Operating system:	4
Support:	3
Value:	4

Ratings are based on a 1-to-5 scale, where 1 is below expectations and 5 is above expectations.

Novell's net management falls short

Users term system a resource hog; bemoan clashing NLM, NetWare bias

BY JOANIE M. WEXLER
CW STAFF

Some early users of Novell, Inc.'s fledgling internetwork management system have hit snags that range from gluttonous server resource consumption to a lack of useful applications.

Novell has touted its NetWare Management System as the enterprise network management system for spanning heterogeneous networks. But despite its positioning, NMS so far addresses only NetWare environments, users said, and does so with limited functionality.

Some users said they are concerned enough to strip the product from their servers until several issues are resolved. Novell officials were unavailable to comment on these issues by press time.

One such customer is Enron Gas Services Co., which said it has seen two instances in which a server failed and the system did not alert the management console. "Aside from providing us with a network map, the system is not feeding us any useful information," said Jim Queen, local-area network manager at the Houston-based firm.

Similarly, Tom Bodenhorn, operations manager in the information systems department at Amos Press, Inc., said NMS' mapmaking function currently "only picks up devices running IPX," Novell's communications protocol. The Sidney, Ohio, publisher runs a large network of Apple Computer, Inc. Macintoshes with NetWare for Macintosh NetWare Loadable Module

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Executive Report — Why more IS chiefs, including Colonial Williamsburg's Jim Bell, are rethinking PC and LAN support. Page 69.

Compaq caught short of new PCs. Page 4.

Alpha-ready machines are ready to roll at DEC. Page 8.

Developers assess Windows NT's future role. Page 12.

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Quotable

"This is no game, and we want them to know that. We're not going to sit by and watch these guys play an electronic version of 'Can you top this?'"

RICHARD DEFILIPPO
FBI

On the FBI's crackdown on computer hackers. See story page 1.

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The 5th Wave

"YEAH, I STARTED THE COMPANY RIGHT AFTER I GRADUATED FROM COLLEGE. HOW'D YOU GUESS?"

EXECUTIVE BRIEFING

■ **Outsourcing may be on the wane as the preferred way of servicing strategic PCs and LANs.** Most companies now mix internal and external service, but a growing number of IS chiefs say they'd prefer to handle more network maintenance, installation, wiring, training and diagnostics in-house. Major factors include cost savings and greater control of strategic downsized systems. **Page 69.**

■ **Some of the most notorious names in the computer hacker community are handed indictments** as federal law enforcement officials continue their crackdown on computer crime. A two-year investigation culminates in the arrest of five defendants ranging in age from 18 to 22, who fall victim to the government's first use of court-authorized wiretaps of hackers' conversations and data transmissions. **Page 1.**

■ **Creators and users of information technology** say the trio of presidential hopefuls is paying insufficient heed to their concerns. Many declare themselves disappointed with the Bush record, wary of Bill Clinton and intrigued by Ross Perot. **Page 1.**

■ **IBM enters the code reengineering niche** via an AD/Cycle partnership with Viasoft. **Page 8.**

■ **Is Lotus CEO Jim Manzi the Rodney Dangerfield** of the computer industry? He has taken Lotus from $156 million to $1 billion in sales during his nine-year tenure, but critics still zing his management style (arrogant), product moves (delays in 1-2-3 follow-ons) and market judgment (where's Windows?). **Page 75.**

■ **Users may be taking the cautious approach** in moving to Windows with some of their core applications. Managers voice concerns about training people on new interfaces, performance trade-offs and the need to upgrade many PCs. **Page 31.**

■ **Chips on steroids** are due out from Intel, which promises an August debut of its most powerful 486DX yet. Observers downplay Intel's summer fireworks. The real power boost, they say, will come with the P5 processor. **Page 4.**

■ **The network management technology behind the application** isn't what's important to many users. They say they are happy to have CMIP, SNMP and SMP hidden from them as long as the application portion of their network management system works. **Page 53.**

■ **Belt-tightening and staff cutbacks at Hughes Aircraft** will put pressure on the company's Systems Sector group to prove itself as Hughes tries to expand its presence in the systems integration business. **Page 80.**

■ **Novell's recent rollout of NetWare Management System** may have been premature. Early users report limited functionality, server drains and inexplicable network freezes — but they also express confidence that the networking giant will soon resolve the issues. **Page 1.**

■ **On site this week:** Big savings from a downsizing move have already started to show up for a development unit within American Airlines. **Page 43.** The cobbler's child isn't going shoeless at Intel, where the internal IS group is actually serving as a test bed for Intel's belief that a major corporation can run on the company's chips. **Page 46.** Pinching pennies means doing in-house application development at Marsh Village Pantry. A nonprogrammer was able to invest two weeks' work and $1,895 for a development tool and build an application that could have cost $120,000 commercially. **Page 67.** Unilever is moving steadily toward full use of standards-based computing, drawing on the technologies defined by the OSF. **Page 56.**

Attention All dBASE Users: Your Windows Have Arrived.

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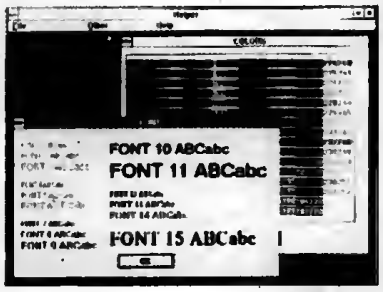

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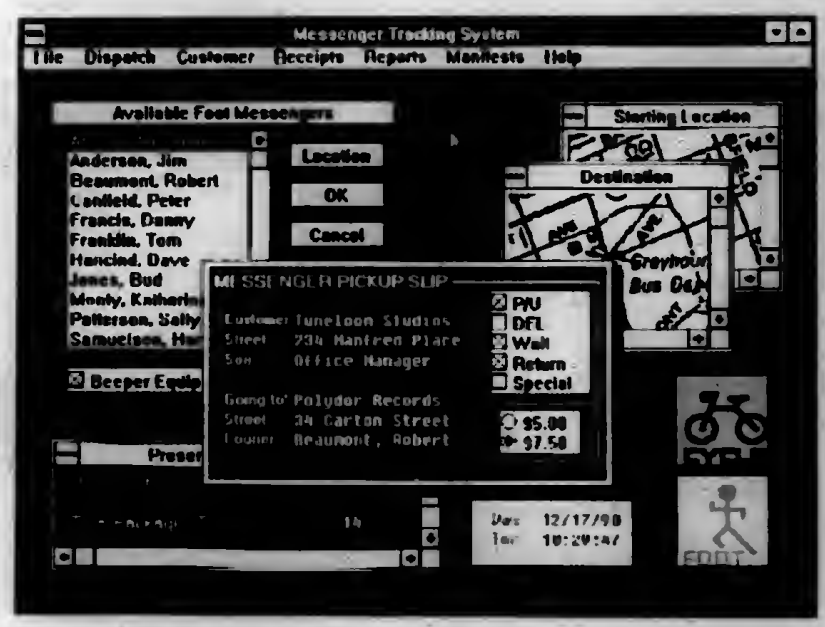

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Price war to hurt PC industry

Analysts warn vendors of regrets to come for this summer's tag-slashing

BY CAROL HILDEBRAND
CW STAFF

Personal computer vendors last week continued to chime into the price-cutting tune set by Compaq Computer Corp. last month. But for some, analysts said, the song will turn out to be a dirge.

"Clearly, by the time this is all over, the industry is going to wish this had been the summer that never happened," said Peter Kastner, an analyst at Aberdeen Group in Boston.

The latest to step up to the price guillotine include NCR Corp., Zenith Data Systems, Digital Equipment Corp., Austin Computer Systems and CompuAdd Corp., with announcements ranging from tag-slashing to new low-end PC families to 486 boxes priced at less than $1,000.

Analysts said the price cuts represented the trickle-down effect: "As the first tier goes, the rest will follow," noted John Dunkle, an analyst at Work-Group Technologies, Inc. in Hampton, N.H. He added that this week's cuts were from second- and third-tier clone makers, as well as major organizations with little to no PC presence.

CW Chart: Stephanie Faucher

One of the biggest firms not yet heard from is IBM. With its Personal System/2 line generally priced at the top end of the market, analysts said, the company needs to respond. "IBM has never been a price leader. It looks like they're being dragged down kicking and screaming," Kastner said. Sources said they expect IBM will announce its price cuts on July 21. While the amount of the reductions is unclear, Models 70 and 80 will probably take a big hit: They are due to be revamped in the fall.

Details of the pricing actions include the following:

- NCR dropped prices 15% to 30% on its servers and workstations and introduced a two-year warranty service on the workstation line. In addition, NCR said it will introduce entry-level PCs in the fourth quarter.
- DEC lopped 35% to 42% off its Desktop Direct line as well as adding an Intel Corp. 50-MHz 1486 model. A 16-MHz 386 machine now costs $935, down from $1,449. The PCs include 3M bytes of random-access memory, a 52M-byte hard drive, a mouse, a monochrome monitor and DOS and Microsoft Corp.'s Windows preinstalled.
- Zenith Data dropped its suggested retail prices in favor of "ZDS prices," which are essentially estimated street prices. The company also reduced prices from 4% to 21%. For example, a 25-MHz 386 box is down 11%, to $1,699.
- CompuAdd unveiled the V Series, a new entry-level line of PCs. The seven desktop and tower models include boxes based on both Intel and Cyrix Corp. processors. Pricing ranges from $899 for a 25-MHz 386 model to $2,399 for a 486 50-MHz DX2 machine.
- Price reductions also clocked in from Austin Computer, with cuts estimated at 10% to 25%. The company also introduced several new machines, among them a 25-MHz 486SLC model for $995.

SGI unveils workstations, cuts prices

BY MARYFRAN JOHNSON
CW STAFF

MOUNTAIN VIEW, Calif. — Silicon Graphics, Inc. ushered in a speedy new quintuplet of Iris Indigo workstations last week and dropped prices on some models in the current line.

The new Indigo R4000 machines are based on the Mips Technologies, Inc. R4000SC processor, a 50-MHz chip that Silicon Graphics claimed will boost CPU and system power by 300% over the original Indigo R3000A models. Mips Technologies is now a wholly owned subsidiary of Silicon Graphics.

The Indigo R4000s range in price from the $12,485 Indigo Entry to the $32,000 Indigo Elan. The new models are scheduled to ship in September, and for $9,000, customers can upgrade from current R3000-based Indigos to the same graphics level in the R4000 line.

Keep the ball rolling

Silicon Graphics officials said they will continue to sell the Indigo R3000s, priced from $6,400 to $27,000, for price-sensitive users who can get by with lower CPU performance.

Silicon Graphics "has done a nice job of making the Indigos a good, friendly visualization environment at a reasonable price," said David Pensak, corporate adviser for computer technology at Du Pont Co. in Wilmington, Del. Du Pont's research and development department uses Indigos as front-end processors for molecular modeling on a Cray Research, Inc. Y-MP supercomputer.

The Indigo has fueled Silicon Graphics' growing presence in the computer-aided design and manufacturing field during the past year, particularly among resellers, said Tom Greaves, vice president of Daratech, Inc., a market research firm in Cambridge, Mass. Silicon Graphics also cut Indigo R3000 memory prices up to 36% on 8M- and 32M-byte modules, which as of Aug. 1 will be priced at $1,250 and $3,500, respectively.

Intel to unleash DX2, claims strongest chip yet

BY MICHAEL FITZGERALD
CW STAFF

SANTA CLARA, Calif. — Intel Corp. will announce its most powerful microprocessor yet on Aug. 10 when it unveils its 33-MHz/66-MHz 1486DX2 chip, according to sources close to the company.

The new DX2 will be followed by announcements of several systems based on it from the likes of IBM, Compaq Computer Corp., Advanced Logic Research, Inc. (ALR) and others, the sources said.

The chip will be Intel's second DX2 processor. The DX2 line uses a clock-doubling technology that increases performance by having the external part of the chip run at twice the speed of the internal part. Intel's OverDrive family of processors, sold through retail channels, also uses clock-doubling technology.

More to come

On Aug. 11, as a follow-on to Intel's announcement, IBM will announce processor upgrade cards based on the 33-MHz/66-MHz DX2 for both its Personal System/2 Model 90 and Model 95 product lines, sources close to IBM said. Versions of these systems with the DX2/66 on the motherboard are expected to come later in the fall, the sources said. Expected list pricing is $3,000 for the Model 90 upgrade, and markedly higher for the Model 95 processor upgrade. IBM does not comment on unannounced products.

Spokesmen at Compaq and ALR refused to confirm any dates, but both said their companies would announce systems based on the 66-MHz DX2 when it is announced by Intel. Both said they expect the chip will be used in desktops and servers.

At least one user is looking forward to the extra power.

"We're looking at [a new project] where we may exceed, or at least stretch, our current environment, so we may have a need for a server based on that 66-MHz processor," said Glenn Sandusky, chief information officer at the benefits consulting firm of Miller Mason & Dickenson in Chicago.

Quantum baby step

Analysts said users may not see much of a performance increase. Moreover, the new chip's pricing is expected to be close to that of the 50-MHz 486DX.

"The 66-MHz DX2 vs. a 50-MHz chip should not be that much faster," said Peter Kastner, a vice president at market research firm Aberdeen Group in Boston. "You'll get the delta between a 50 MHz and a 66 MHz. However, as soon as you go to memory, all bets are off."

Kastner and others said a quantum jump in performance was unlikely until the P5, Intel's next-generation microprocessor, appears later this year.

Intel refused to comment.

Backlog leaves Compaq buyers searching

BY CAROL HILDEBRAND
and MICHAEL FITZGERALD
CW STAFF

HOUSTON — A backlog of orders on Compaq Computer Corp.'s new low-priced computers has the company suffering from an embarrassment of riches as some users look elsewhere to fill short-term needs.

"I was looking for a couple units . . . and was told they were not available until July 17. Then Dell lowered their prices, and I just switched," said Charlie Shepard, microsystems manager at Mirage Resorts, Inc. in Las Vegas. "You need a PC unit, you can't wait for it."

However, Shepard said the backlog would not stop him from buying Compaq machines once they become available.

Jim Hayes, chief information officer at Taylor Medical, Inc. in Beaumont, Texas, said he has several purchase orders ready to go for Contura notebooks. If they are unavailable, "it could make me go to another brand as a stop gap measure," he said. Any major buying commitments are likely to be unaffected.

Compaq spokesman John Sweney last week attributed the bottleneck to greater than anticipated demand for every product the company announced June 15. The company expects to be fully up caught up with demand later this quarter, he said.

Analysts said that while Compaq is likely to lose some sales as a result of the shortfall, most major customers will wait out the price war before making major decisions. "Our large corporate buyers are still waiting to see how low they can go," said Matthew Cain, an analyst at Meta Group, Inc.

Bruce Stephen, an analyst at International Data Corp., said the situation is not unusual. It takes a while for the channel to fill, he said, and while the dearth of available products will cause some users to switch buying plans, "smart customers are going to wait until conditions level out — maybe wait to see what IBM and AST are going to do. . . . There's a lot of opportunity for people to save money."

However, the situation is causing some users to hedge their bets. Douglas Murphy, director of information systems at Comcast Corp. in Miami, said his distributor had warned him of the problem. "As a contingency, I'm asking our distributor to check other lines, AST being our backup," he said.

Check out the Marketplace Pages on Page 91.

WHAT HAVE BILL GATES, SCOTT MCNEALY, JOHN SCULLEY, JOHN YOUNG AND LARRY ELLISON AGREED TO COOPERATE ON?

NEWS SHORTS

IBM to disclose strategic initiative

IBM is expected to disclose a strategic business agreement today. Wall Streeet sources said IBM will reveal an agreement with Toshiba Corp. and Siemens AG to build 256M-bit dynamic random access memories. IBM and Siemens currently are cooperating on 64M-bit memories.

Token Ring patent claims upheld

After two years of reexaminations, the U.S. Patent and Trademark Office has upheld all the claims of a holding company that administers the Token Ring networking technology patent. The move means that long-standing litigation by Token Ring vendor Madge Networks, Inc., which has been fighting Token Ring inventor Olof Soderblom's patent for years while refusing to pay royalties, can resume. Madge won its case against the Soderblom patent in the UK in June 1990. The Soderblom patent currently applies to both Token Ring and Fiber Distributed Data Interface technology.

KnowledgeWare eyes OS/2 tools

KnowledgeWare, Inc. plans to support IBM's new focus on software re-engineering with an OS/2-based module for analyzing and reworking Cobol applications. Application Development Workbench (ADW)/Maintenance Workstation, its first 32-bit OS/2-based product, will include a graphics maintenance facility that shows program logic and lets programmers graphically edit applications. It will interface with KnowledgeWare's existing re-engineering tools under ADW.

Apple, Quorum resolve suit

Quorum Software Systems, Inc. has settled its 3-month-old lawsuit against Apple Computer, Inc. The Menlo Park, Calif.-based software company sued Apple earlier this year after Apple complained that Quorum had violated its copyrights and patents. Quorum countered by asking the court to declare that no rights were violated and that some of Apple's patents were invalid. Terms of the settlement were not disclosed.

DAL server aids Apple/IBM link

Pacer Software, Inc. is expected to unwrap its Data Access Language (DAL) Server today. It enables IBM RISC System/6000 AIX users to run Apple Computer, Inc. Macintosh applications that access large, host-resident databases. The DAL Client is Apple's standard for relational database connectivity. Pricing ranges from $4,000 for 16 users to $12,000 for unlimited access.

ISSC nails retail outsourcing pact

IBM outsourcing subsidiary Integrated Systems Solutions Corp. (ISSC) racked up another retail industry score last week, signing a long-term pact to run hardware and data center operations for Rochelle Park, N.J.-based United Retail Group, Inc. Under the agreement, ISSC will also maintain a store-to-host data network and oversee in-store automation. Its latest client, which operates several nationwide chains of large-size women's apparel, will continue to do its own development.

Short takes

Data General Corp. plans to expand its Unix-based Aviion line of workstations and servers tomorrow with four new products said to expand Aviion's compute and data availability functions, a spokesman said. . . . **Intel Corp.** will cut prices today on its entire line of math coprocessors. A spokeswoman said all Intel math coprocessors — the 80387SX, 387DX and 387SL mobile — will be priced at $99, in response to price cuts from competitors **Cyrix Corp.** and **Integrated Information Technology, Inc.** Previously, Intel's math coprocessors were priced between $149 and $299. . . . **Dataquest, Inc.** has named as president Judith H. Hamilton, a 26-year information technology veteran. She will have overall responsibility for Dataquest's worldwide market research and consulting services.

More news shorts on page 16

Dull named Kimberly-Clark CIO

But some say former vice president inherits a post of diluted authority

BY NELL MARGOLIS
CW STAFF

DALLAS — Kimberly-Clark Corp. last week moved Vice President James Dull, 45, into the chief information officer slot vacated late last month by Dull's longtime mentor, John T. Kohler.

Meanwhile, observers differed on whether a concurrent change in reporting lines signals a lessening of the company's heralded commitment to information systems.

Kohler left amid bold IS rollouts on multiple fronts [CW, June 29]. However, Dull's appointment is no panic grab, according to several highly placed sources, who said the paper products player was able to act quickly because the ideal candidate was suited up and waiting in the wings.

"In fact," noted Kohler, now a partner at Technology Solutions Co., "I hired him in as part of the succession plan." The tight chain of successorship, he said, indicates that the guard is the only thing that is really changing in Kimberly-Clark's ambitious IS plans.

However, a former Kimberly-Clark executive who asked to remain anonymous saw a reporting change instituted last week as ominous: Where Kohler reported directly to Chief Executive Officer Wayne Sanders, Dull will report to Thomas Falk, senior vice president of administration and analysis.

"This is a clear signal that IS is not as important to upper management as it once was," the former executive said. "At a time when other major corporations are promoting IS and bringing it closer to the critical business functions, Kimberly-Clark is backsliding."

Not so, Falk said. "The status of the [IS] organization is in no way affected by the change in reporting relationship," he said. The move, a spokeswoman added, "is simply a reorganization." The firm declined to state the reasons for the reorganization.

A second former Kimberly-Clark executive who asked not to be identified agreed with the company's denial that a demotion of the IS function can be read into the action. He said he viewed the move as the necessary straightening of reporting lines gone askew.

"Kohler reported to [former Kimberly-Clark CEO] Darwin Smith," he noted. "When Sanders succeeded Smith in April, no one saw a reason to rock the boat." However, he said, the boat was rocking already because "Smith, in his inimitable fashion, got more involved in IS than he probably ought to have been." Dull, he added, "has great credibility with Sanders, as he does with everybody in the organization. Falk is a very able guy, and also very highly regarded. This is no demotion."

Dull declined to be interviewed at this time.

If Dull's line of reporting received mixed reviews, the appointment itself did not. "Jim Dull is the best person they could have possibly found for this very important job," said one of the former Kimberly-Clark executives. "He's not a technician in any sense of the word; be's a leader in every sense."

The executive said Dull's abilities to spot and nurture talent, to motivate people and especially to translate technology to nonscientific users auger well for his turn at the firm's CIO bat.

Court orders IBM to refund AS/400-related overcharge

BY KIM S. NASH
CW STAFF

SAN DIEGO — IBM Credit Corp. (ICC) was stung last week by a federal circuit court judge's ruling that ordered IBM's financing arm to repay a local software developer up to $56,000 for Application System/400-related bills that the developer was found to have overpaid three years ago.

Observers said the case touched on an issue faced by many third-party software makers when the AS/400 line was introduced in less-than-perfect shape in 1988. Specifically, early AS/400 models contained, by some estimates, up to 3,000 hardware and software bugs, for which IBM had to issue program temporary fixes (PTF). When the problems interfered with the performance of third-party applications, end users demanded help from their independent vendors.

The vendors, in turn, sent out support staff to smooth over the problems but could only respond as quickly as IBM put out PTFs. Although IBM claimed that relatively few bugs existed, it took the unprecedented step of setting up a special office in Rochester, Minn., to handle customer complaints, according to testimony from Ralph Martino, general manager at ICC. At the time the lawsuit was filed, Martino was a marketing executive.

It remains to be seen whether this case will open the floodgates for other lawsuits to be filed against IBM or ICC.

"There was a lot of trouble with the early models, which caused problems for third parties all over the country," said Dolly Fair, president of Fair Marketing, Inc., a used equipment broker in Deerfield Beach, Fla. "Who knows what will happen now?"

The case began when ICC sued Legal Eagles Software Systems, Inc. in 1989, alleging that the company ducked payment of its bills. Legal Eagles countered that its perturbed customers of early "bug-ridden" AS/400 models withheld payments, which, according to Legal Eagles President Bill Tudor, caused it to slip on obligations to ICC. So separately, in 1989, Tudor sold his company to another software developer and used some of the proceeds to pay off ICC. The judge ruled last week that Legal Eagles ended up overpaying by $44,000 to $56,000, the exact sum to be determined within 30 days.

Meanwhile, Legal Eagles had countersued, alleging that ICC representatives had committed fraud and negotiated contracts in bad faith.

Legal Eagles, which is no longer in business but exists only to see this suit through, also sued ICC for out-of-pocket expenses incurred when Legal Eagles sent its own support personnel to fix hardware and operating system problems "that were essentially IBM's fault," Tudor said.

The judge denied these claims, saying that they did not pertain to the financial collection case at hand and would have to be taken up with IBM proper.

For its part, ICC does not believe this decision will precipitate any further legal action from resellers or developers, according to a spokesman.

"The AS/400 has been out for several years, with a strong reputation," the spokesman said, implying that if other companies had contemplated filing lawsuits stemming from early AS/400 problems, they would have done so already.

ICC has no plans to appeal the ruling, the spokesman said.

IBM software triggers calls to network servicers

BY ELISABETH HORWITT
CW STAFF

WHITE PLAINS, N.Y. — IBM offered last week to take some of the burden off help desk managers' shoulders via an OS/2-based product that automatically calls in outside service providers to fix problems on the network.

There is a catch, however: Help desk departments or users must first pinpoint the source of the network problem and enter the information on IBM's mainframe-based trouble-ticketing system, Information/Management.

In the past, help desk managers have had to put together the relevant facts about each new problem twice: once as an Info/Management record and a second time over the telephone to the vendor's service center, an IBM spokesman said.

Once IBM Problem Management Bridge (PMB)/MVS is installed, however, help desk managers need only create the initial Info/Management record of a problem, then press a PF key, IBM said. PMB is said to automatically create a trouble ticket that describes the problem and the device or circuit affected and send it to the third-party service company, carrier or network vendor that is responsible.

PMB keeps files of background data such as the company account number, address, product number and configuration and automatically fills this information in, the spokesman said.

IBM's product is a "step in the right direction" toward efficient problem management for companies that have been moving to a more distributed, networked computing environment, said Michael Kennedy, senior consultant at Arthur D. Little, Inc., a Cambridge, Mass.-based consulting firm.

However, Kennedy cautioned, the product will not do much good in companies that are still struggling to coordinate support across telecommunications, local-area networks and data center operations. These firms must organize problem identification resolution across these different domains before they install a product such as PMB, "or else you'll have one problem generating a dozen trouble tickets," Kennedy said.

The product also eliminates the need for help desk managers to field telephone calls from the vendor, providing notification of a repair person's arrival time, a delay or a missing part, IBM said. The vendor support center can use the PMB link to send this information directly to Info/Management rather than playing telephone tag with the help desk.

Sophisticated users can develop IBM NetView applications that automatically collect alerts from a variety of network systems, create Info/Management trouble tickets and send them to the right vendor, eliminating help desk operator intervention, a second IBM spokesman said.

The initial product is scheduled to ship Sept. 25 with a base price of $15,000. A link to IBM's Network Service Support Center costs an additional $10,000.

Bridging the gap

With some 20,000 end users generating approximately 150,000 trouble calls annually — a number that is expected to rise — Pratt & Whitney, an aerospace defense contractor in Hartford, Conn., has been looking for ways to improve the quality and timeliness of problem resolution on its computer networks. But it doesn't want to hire a lot of new help desk operators.

IBM's PMB, which the United Technologies Corp. division has been beta-testing, is potentially one piece of the answer.

The product promises to save help desk managers time dealing with problems that require outside help from a vendor or third-party support center, said Michael Morin, supervisor of data center operations at Pratt & Whitney. While such problems only make up about 12,000 to 15,000 calls per year, each one requires a help desk operator to spend several minutes on the phone giving the vendor "basic user and configuration information," he added.

With PMB, the operator can convey that information by calling up one field, turning "a multiple-minute transaction into a few seconds," Morin said.

Furthermore, PMB automatically fields vendor callbacks, "acknowledging the problem, saying they'll fix it in two hours or that they're waiting for parts and will be back in two days," Morin said.

Pratt & Whitney is also using PMB in a pilot test of an application that enables end users to generate their own trouble tickets, Morin said. "With PMB, users can dispatch tickets directly to the vendor without involving the help desk at all."

ELISABETH HORWITT

INNOVATION DATA PROCESSING

Announ

FDR REORG

FATS

FATAR

IAM

PAKTOR

ABR

FDR

DSF

		ELAPSED	CPU	EXCPS
	FDR REORG	0.64M	2.97S	328
SYS1.LINKLIB	IEBCOPY	7.50M	60.51S	20574
	SAVINGS	91.5%	95.1%	98.4%

FOR 20 IBM

INNOVATION DATA PROCESSING

IBM picks Viasoft as AD/Cycle member

BY JOHANNA AMBROSIO
CW STAFF

WHITE PLAINS, N.Y. — IBM last week added Viasoft, Inc., a developer of re-engineering tools, to its International Alliance for AD/Cycle. In doing so, IBM voiced support for the art of re-engineering existing code — a new market niche for IBM.

Also last week, AD/Cycle partner KnowledgeWare, Inc., based in Atlanta, introduced re-engineering tools (see story p. 6). Alliance members Bachman Information Systems, Inc., Intersolv, Inc. and Micro Focus, Inc. already offer re-engineering products, but Phoenix-based Viasoft, with its more mainstream product line, will probably take the lead in helping define AD/Cycle's re-engineering strategy, observers said.

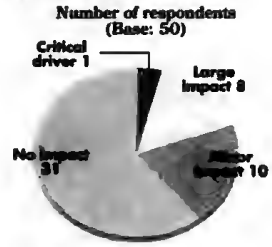
Re-engineering refers to the process of analyzing and cleaning up applications code by eliminating data-name redundancies and performing other housekeeping tasks. The code is thus made ready for the next step — changing it, adding to it or moving it to a different hardware platform. Until the agreement with Viasoft, most of IBM's and its AD/Cycle business partners' offerings focused on developing new applications as opposed to working with existing applications.

"It's a recognition that maintenance is a critical part of AD/Cycle," said Mike DeSena, information systems manager at The Travelers Corp. in Hartford, Conn., a Viasoft customer. "Until now, most AD/Cycle tools have been for new development, but that represents only about 20% to 25% of our activity. The rest is maintenance."

Ed Acly, an analyst at Technology Investment Strategies Corp. in Framingham, Mass., said the partnership "acknowledges one basic fact: There are some real nice bottom-line benefits to be had by addressing maintenance." He added, however, that the relationship will not likely help IBM and AD/Cycle win much more market share because IBM's Repository Manager is still not complete.

Unnoticeable

AD/Cycle has had little influence on user's CASE strategy



Source: Forrester Research, Inc.

"When you talk about AD/Cycle, the first thing that comes to mind is Repository. That has left a bad taste in people's mouths, and we've stayed away from it," added Joseph Panasci, an associate at Morgan Guaranty Trust in New York, also a Viasoft customer.

Business terms of the agreement were not disclosed, but IBM will sell five of Viasoft's mainframe-based re-engineering products beginning July 17.

Most industry watchers reacted positively to the IBM/Viasoft relationship, noting that the development and marketing deal would probably have more impact on Viasoft than it would on IBM, which is mostly filling product gaps through the deal.

Sentiments shared

"It will also expose Viasoft to a better financial position, and that will benefit everyone," said Rich Olshefski, vice president of IS at Reliance Insurance Co. in Philadelphia. "I've always felt strongly that Viasoft is one of the premier vendors in the re-engineering field, but now IBM does too."

Some of Viasoft's 1,000 customers said they hoped the relationship would speed up Viasoft's delivery of re-engineering products that run under OS/2. "If they move the workbench to OS/2, that would benefit us," Panasci said.

Viasoft President LeRoy Ellison said the arrangement will "improve our financial outlook dramatically. A lot of customers see us as a smaller player, and this should simplify the sales cycle." For fiscal year 1992, which closed on June 30, revenue for the private company was in the $18 million range, Ellison said, adding that revenue should grow by "at least 50%" for the current fiscal year.

He said that Viasoft will make "no major changes" to its development plans as a result of the deal but said that "we have made commitments to develop OS/2 products as fast as possible. We will probably accelerate what we would have done otherwise." Four OS/2 products will be ready by the end of the year, in contrast to the original plan of having two ready by year's end and two ready by mid-1993, Ellison said.

Viasoft's own version of a central repository allows the tools to share information. That repository will evolve to share information with IBM's Repository Manager, Ellison said.

DEC to announce Alpha-ready boxes

BY MELINDA-CAROL BALLOU
CW STAFF

MAYNARD, Mass. — In an effort to smooth migration concerns and entice customers into early purchases of its next-generation computers, Digital Equipment Corp. will unveil a family of "Alpha-ready" systems this week. The boxes are slated to ship by the end of September.

However, some users interviewed last week indicated that they are not biting, saying they will wait to see the full-blown Alpha system before making any decisions.

Separately, DEC will also announce two major shifts in the company's software business practices this week: user-based pricing and a decision to oo longer bundle runtime Rdb with the Open VMS kernel and base-level systems.

Although Pauline Nist, DEC's group engineering manager for data center systems and servers, maintained that the pricing on the server packages would be favorable and users would not pay a penalty, analysts said they expect the move may negatively affect Rdb sales.

The long-expected unveiling of Alpha-ready systems [CW, June 15] comes one week prior to the release of DEC's financial results for the company's fourth fiscal quarter, which industry analysts said they expect to be dismal.

Included in the announcement will be the VAX 10000 family, which comprises extensions to the current VAX 9000 mainframe series; the VAX 7000 family, which extends the current VAX 6000 line; and Alpha-ready VAX 4000s, a VAXstation 4000 Model 90 and a MicroVAX 3100 Model 90.

The systems will all be based on DEC's next generation of NVAX processors. The 7000 and the 10000 series will offer a pin-compatible version that will allow users to swap in an Alpha board when the boards become available. The lower end systems will require a box swap.

"Given the level of interest that has been generated by Alpha, we wanted to provide Alpha-ready solutions that would give people some degree of control over their business planning as they wait for systems to become available by guaranteeing a fixed upgrade price," Nist said.

Industry analysts were positive in their assessments of the strategy. "It's a bit of good news before the tornado [of the company's financial results] strikes," said Chris Christiansen, research director of multiuser systems at International Data Corp., a market research firm in Framingham, Mass.

Slow to move

Many users, however, will want to wait for the actual Alpha machines before making their choices, he added.

"We have no desire to jump into it at this point — we've got an installed base of traditional VMS machines, and that's what we'll use for the next year or two," said Rick Webster, a senior systems analyst at Caterpillar, Inc., a Peoria, Ill.-based manufacturer.

"We have a group of RS/6000s on the way. It's a price/performance issue, and we'll evaluate Alpha when it arrives," added Bill Anderson, chief information officer at Prudential Securities, Inc. in New York.

But for people who are already convinced of the need to move to Alpha, these systems will be helpful, according to Ted Nieland, a member of the VMS Systems Special Interest Group Executive Committee at the Digital Equipment Computer Users Society.

"There are people who need these machines now and who are trying to plan for the transition," Nieland said. "This gives them options."

All DEC'd out

DEC hopes its new Alpha-ready machines will get users motivated to migrate to its next-generation system. A sampling of the new offerings:

Model	Configuration	Memory	Price*
VAX 4000-600	Uniprocessor	64M bytes	$138,000
VAX 7000-610	Uniprocessor	128M bytes	$256,000
VAX 10000-610	Uniprocessor	256M bytes	$442,000

*Tentative

CW Chart: Stephanie Faucher

DEC cuts back RdbStar; wins users' support

BY MELINDA-CAROL BALLOU
CW STAFF

Digital Equipment Corp. users appeared mostly unperturbed that the company recently pared a distributed database project, saying the technology potentially duplicated features available with the Rdb engine and would have had minimal short-term impact.

The decision to eliminate RdbStar's database engine, sources said, is part of a corporatewide plan to cut expenses by streamlining software development costs [CW, June 29].

DEC will now focus on building distributed database capabilities that will run in conjunction with the Rdb database engine for applications on multiple relational database management systems and operating systems, DEC sources said. DEC officials said they are still in the process of deciding which portions of the project to retain and what to offer.

Some members of the Digital Equipment Computer Users Society were generally supportive of DEC's decision to focus on Rdb.

Right move

"I've had a little concern that DEC was investing heavily in a duplicate database and that was going to substantially confuse people," said Jeffrey Jalbert, president of JCC Consulting, a Granville, Ohio-based consulting firm, and recent chairman of the user society's VAX to Alpha Transition Group. "Taking a full-featured Rdb and translating that to Unix with the [distributed] capabilities of RdbStar, that's what DEC should have tried to do from the beginning."

Tim Mueller, chairman of the society's Data Management Systems Special Interest Group, said he thought RdbStar was designed to overcome architectural hurdles to distributed data management that are present in the Rdb architecture. But users may not yet require those capabilities, he said.

"Until you look at distributed [features], Rdb is robust," Mueller said. "But most users are still grappling with two-phase commit, and they're still learning about what they can do with available technology. People are saying that they need it in the future, but they're not sure they need it right now."

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"Oracle's always been the leader in building database technology. One of the great things about Oracle's approach is that they're hiding the differences between all the machines out on the network running on various platforms."

Bill Gates
Chairman and CEO
Microsoft Corporation

"ORACLE7's breakthrough in hiding technological complexity is analogous to the ease-of-use breakthroughs accomplished by the introduction of the Mac in 1984."

John Sculley
Chairman and CEO
Apple Computer, Inc.

"The fundamental problem with early client-server database management systems is that applications cannot access data on more than one server without a lot of extra programming. This programmatic approach to accessing data on multiple servers is in stark contrast to the totally automatic approach provided by ORACLE7."

Larry Ellison
President and CEO
Oracle Corporation

"With HP systems and ORACLE7, our customers will have the desktop to high-end performance they need for a fraction of the cost of mainframe computing solutions."

John Young
President and CEO
Hewlett-Packard Company

"ORACLE7 is really solving the complexities of the distributed computing environment cost-effectively. Plus, it supplies the reliability and security that are required in a distributed computing environment. In fact, because ORACLE7 matches Sun's client-server model so well, we have chosen ORACLE7 as one of our key databases."

Scott G. McNealy
President, CEO and Chairman
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Pioneers moving nets to fast ATM technology

CONTINUED FROM PAGE 1

Fiber Distributed Data Interface (FDDI) network.

The Air Force, TI and Bear, Stearns all said they intend to leverage Adaptive's ATM products for the voluminous bandwidth they need for multimedia, imaging, computer-aided design and manufacturing and other distributed applications. They said they will bypass FDDI entirely or use FDDI in niche applications.

Because all current LANs rely on multiple users sharing a fixed amount of bandwidth, network performance can degrade as additional users attach. This generally results in network administrators continually segmenting networks to keep local performance high, eventually slowing interLAN performance as traffic must travel through more bridges and routers.

On this issue, John M. McQuillan, president of McQuillan Consulting in Cambridge, Mass., said that "most internetworks today are in crisis because we've outgrown the original design points with bridges, routers and hubs."

Because of this, "we need a radical adjustment to our network infrastructure," said Sam Shuler, communications strategy manager at TI. "It looks as if ATM will get us out of the mode of reactive service delivery and ahead of the power curve."

Jeff Marshall, Bear, Stearns' managing director of communications, said 20% of his users need the 100M bit/sec. to-the-desktop speeds currently afforded by Adaptive's ATM. A year ago, Bear, Stearns was bullish on FDDI, but "we dropped those plans when ATM heated up," said Ken Starkey, associate director of communications.

Networking officials at TI and the Air Force cited goals of immediately moving 10% of their desktop users and 100% of their backbones onto ATM and shifting to 100% ATM desktops by late 1994. The decisions represent a displacement of the organizations' current network infrastructures, the officials said.

Frank Ricotta, director of network services at the Space Systems Division of the Air Force, said he has about 10 FDDIs that he intends to phase out. Because of remote launch testing and distributed number-crunching applications, "our chief information officer was easy to convince" about moving to an ATM infrastructure, he said. "The technology reduces cycle time and saves money."

Embedded base dilemma

However, the full-blown infrastructure swapouts of the three organizations are not likely to reflect the paths that mainstream corporate America will take in getting their networks onto ATM, given their installed LAN bases. Gateways in routers and wiring hubs for feeding LANs such as Ethernet into ATM networks are expected to serve as a common ATM migratory path.

But "our leading-edge customers tell us they know the network course they are on with today's LANs is not sustainable," said Audrey MacLean, Adaptive's chief executive officer.

However, ATM, like any new technology, has a pricing problem, noted Paul Callahan, a senior analyst at Forrester Research, Inc. in Cambridge, Mass. Combined per-port switch and adapter card prices total about $9,000 per ATM connection, compared with the more palatable FDDI prices, which have dropped into the $2,000 range with recent announcements by IBM and 3Com Corp.

The scalability is worth the price for users in need, such as the Air Force, Ricotta said. "Today's cost, compared with other LANs like FDDI, is higher for getting the infrastructure in place. But over time it is cheaper" because technologies do not have to be replaced, he said.

Quick switch on way

Adaptive's ATMX kicks off the movement to LAN switching:

Characteristics: Local-area multimedia switch with 1.2G-byte backplane.
- Users plug in cards to add capacity.
- "Virtual network" concept means LANs are configured in software instead of via physical media. If workstation moves, no new address needs to be issued.
- Switched point-to-point connections rather than contention for bandwidth.

Speed: Initially 100M bit/sec. per device.
Media: Fiber; copper to come.
Adapter cards: Initially available for Sun Microsystems, Inc. SPARCstations only.
Management: SNMP manager with X Window System/OSF Motif interface.
Price: $9,000 per connection (includes both switch port and adapter card).
Availability: September 1992.

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Windows NT gains respect at Win32 show

BY CHRISTOPHER LINDQUIST
CW STAFF

SAN FRANCISCO — It was the techies' day to play as more than 4,500 developers converged on the Moscone Center this week for Microsoft Corp.'a Win32 Professional Developer'a Conference. After touring the guts of NT, many attendees declared themselves happy with what they had seen.

After seeing for themselves that Windows New Technology (NT) is real, commercial and some corporate developers said their next step is to determine where and how NT fits into their strategic plans.

Several corporate developers at the conference said they were investigating the actual potential for NT. However, only one, a software architect at the U.S. Department of State, said he had any particular projecta in mind for the operating system.

But even if attendees were only browsing, the sheer number of developers present was a positive sign to companies considering the adoption of Windows NT. An attendee from a large insurance company said his company was a big OS/2 shop, but it is looking into Windows NT for some uses. The conference helped confirm for him that Windows NT would be a viable operating system.

"I've been to OS/2 shows, and they've been one-tenth the size of this," he said. "There are not as many developers interested" in OS/2.

Although Microsoft officials reiterated the party line that NT is slated to ship by year's end, there were some rumblings — although not a lot of concern — about the possibility of a slipped ship date. Several developers commented that they would not be surprised if Windows NT is not released until early next year. But they also noted that Microsoft would be well-advised to ship a stable product a couple of months late than to ship a less-than-ready product on time.

Not ready to capitulate

While the high attendance bodes well for the future of third-party applications under Windows NT, just how many products will actually result from this conference remains to be seen. Some developers' questions are still unanswered.

For example, some developers were concerned about the order in which Microsoft is releasing the pieces of its 32-bit development kit. A developer at a large insurance company said he would like to have seen the Win32S subset of the Win32 application programming interface available with the kit now instead of later this fall.

Win32S will allow developers to write a 32-bit Windows application that will run on both Windows NT and Windows 3.1.

The goal of Win32S is to give developers access to the large installed base of Windows 3.1 users while providing an easy upgrade path to Windows NT and other 32-bit versions of Windows to come.

Another developer wanted a device driver development kit available with the prerelease version of the software development kit (SDK) distributed at the show so that less mainstream devices, such as fax cards, could be made to support NT early on. Currently, the Windows NT SDK supplies drivers for several of the more popular video, Small Computer Systems Interface and compact disc/read-only memory devices as well as one tape backup system and a sound card.

Favorable impression

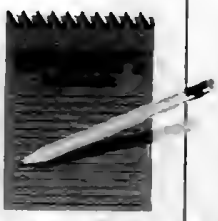
As for Windows NT, attendee enthusiasm was high. Dozens of machines — both Intel Corp.- and Mips Technologies, Inc.-based — were available for hands-on testing. The test room was generally full of developera looking for a chance to try out a variety of NT features, with many complimenting Microsoft on the stability of the product. Indeed, very few of the machines crashed during the three days of the show.

The demonstration machines allowed users to try out most NT features, including security and system administration. Some machines also ran copies of 32-bit Visual Basic, Excel and Frame Technology Corp.'s FrameMaker as well as Corel Systems Corp.'a 16-bit CorelDraw and Borland International, Inc.'a DOS-based dBase.

Windows NT is still in its infancy, however, and several months of testing is needed before it can be determined how well the operating system will meet its and developers' goals.

Dave Zanini, a systems analyst at the Colorado Department of Transportation in Denver, summed up NT'a future in six words: "It'll be great if it works."

The Win32 Professional Developer's Conference last week managed to attract some 4,600 developers, but not all of the action was confined to the technical break-out sessions. Quite a bit was happening in other areas of the conference, including the following:



• Anyone who attended the Windows Futures session was given a chance to take a quick look at Microsoft's Cairo, an object-oriented environment scheduled for release in 1994. Cairo is based on Microsoft'a object model, which will be an extension of the Object Linking and Embedding feature currently found in Windows 3.1.

• Microsoft'a Paul Maritz received some applause — and some laughs — when he announced that Windows NT will ship with a wide variety of printer drivers, a major fault with earlier versions of OS/2. In his words: "We've sworn we will never again ship an operating system that doesn't print."

• Phar Lap Software, Inc. in Cambridge, Mass., found the best way to gain market share with a product: First create the market, then give away the product. Phar Lap is taking orders for Quickstart, a tool that lets developers create Windows NT applications under DOS. The goal of the product is twofold: to give developers who might not have the hardware necessary for full NT development a chance to get going and to give Phar Lap some answers as to where it should aim its business in the future. Developers must fill out a survey in order to receive the product.

• With all the attendees, you would think the world was flooded with Windows programmers. Such is not the case, however. The message board in the main entrance of the Moscone Center had new job openings posted on a daily basis. To address this shortage, Bill Gates said Microsoft was pursuing getting NT into educational settings. In fact, universities may even gain access to Windows NT source code.

• Attendees at a reception held Sunday night were asked to write down questions to be answered by Bill Gates at his keynote the next morning. One inquirer wondered if the Microsoft head had managed to get his Porsche 959 on the road yet. No, Gates replied, indicating that his busy schedule had forced him to leave the less than road-legal sports car in a free-trade zone in Oakland.

Compiled by staff writer Christopher Lindquist

Novell's net management falls short

CONTINUED FROM PAGE 1

on its servers. However, "you can't see the Macs," which speak AppleTalk protocols, he noted.

Also troublesome, Bodenhorn said, is that the NMS software developer'a kit is nowhere to be found, although Amos Press ordered it months ago.

The law firm of Brobeck, Phleger & Harrison in San Francisco, an original NMS beta-test site and user of the controlled release now in circulation at 600 sites, expected a "device-independent" product, according to Mark Greinke, a network engineer. "But the current reality is NMS is a passive monitor of Novell equipment only," he said, and until third parties add their extensions to it, "it is of minimal use."

NMS performs well gathering statistics, Greinke said, "but I want to do dynamic configuration of servers, routers, multiplexers and wiring hubs from one console." Currently, he said, he must hop among four different consoles — each with a different interface — to manage the various devices.

Queen also reported that Enron'a NetWare server utilization shot up from about 20% to 80% when it loaded the series of NLMs comprising NMS 1.0. "This has slowed the entire network down with noticeable response time delays," he said.

Not all users reported such extreme server drains. Bodenhorn, for example, said he saw just a 5% to 8% consumption of memory in his servers' available cache buffers, which has not impacted network performance. And Novell has reported network utilization increases of only 2% on average.

However, NetLAN, Inc., a New York Novell dealer with about 10 customers running NMS, has "seen some abnormally high server utilization and freezing," said Marc Trachtenberg, director of technology. "My gut feeling is that the problem is the way the management stuff handles itself in memory." Trachtenberg ventured that NMS could be running in some unprotected memory areas that are supposed to be reserved for the NetWare core operating system.

'Resource hog'

Frank Dzubeck, president of Communications Network Architects, Inc., a Washington, D.C.-based consultancy, said NMS "is a resource hog" because it was designed as a LAN-at-a-time manager of internetworks rather than as an enterprise manager.

The LAN-by-LAN nature of NMS is proving to be a bit of an obstacle to insurance firm Capital Holding, Inc.'a goal of distributing multiple management consoles corporatewide. Bob Pruitt, a network engineer at the Louisville, Ky.-based firm, said the network management databases currently cannot be distributed across servers so that a management console on each LAN can access the data.

"If the databases were on the network [rather than stored locally on one centralized management console], a distributed set of consoles could access those files without us having to totally configure each console," he explained.

Another NMS issue concerns occasional NLM-clashing [CW, March 30]. Enron was chagrined to discover — by fluke rather than directly from Novell — that a software patch was necessary to harmonize NMS with its Cheyenne, Inc. Arcserve tape backup NLM.

Trachtenberg said Novell is creating software patches rather than discovering problems with the system. "This is undesirable because if you need a special patch for each NLM and you load another NLM that doesn't like that patch," you can run into more problems, he explained.

In light of the myriad NMS issues — not uncommon with newly released, sophisticated products — most customers are "taking NMS off their servera and waiting," Trachtenberg said.

"I've never bought a bad product from Novell, but I consider thia to be a bad product," Queen said. However, he added, he is confident that the vendor'a track record indicates it will soon remedy the glitches.

Similarly, Pruitt said, "While currently NMS is not doing a lot for us, we like what we see as a foundation. We hope that 18 months from now the third-party applications will kick in and make it shine."

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Wiretap snares alleged hackers

CONTINUED FROM PAGE 1

and watch these guys play an electronic version of 'Can you top this?' "

According to the indictment, the men allegedly carried on a conversation in early November 1991 in which they sought instructions on how to add and remove delinquency reports "to destroy people's lives . . . or make them look like a saint."

Several days later, members allegedly discussed a lengthy list of institutions that operated computers, with one member noting, "We've just got to start hitting these sites left and right." Law enforcement officials interpreted that to mean government offices, private companies and a U.S. Air Force base.

The group's earliest known act dates back to Nov. 28, 1989, when authorities said the group wiped out nearly all the information contained in the Learning Link computer operated by the Educational Broadcast Corp., WNET Channel 13 in New York. A message was allegedly left that said: "Happy Thanksgiving you turkeys, from all of us at MOD," signed by Acid Phreak, Phiber Optik and Scorpion.

That does not wash with some observers. "Several times, Phiber Optik has spoken publicly and very genuinely about his aversion to corrupting data, so it seems unusual that he would destroy data and then identify himself," said Mike Godwin, general counsel at the Electronic Frontier Foundation, a civil liberties lobbying group based in Washington, D.C. "This whole indictment could very well be an attempt to frame some people who the authorities believe glorify hacking."

The hoped-for chilling effects of the indictments could thus be reversed into outrage if the investigation turns out to be bungled. The federal government, after all, has a checkered history of computer raids, observers pointed out.

In early 1989, for example, Secret Service agents arrested Craig Neidorf for allegedly dialing into the computers at Atlanta-based BellSouth Corp. and copying documents on the firm's 911 system. The agency charged Niedorf with illegally publishing a document that BellSouth claimed was worth $79,000. The government's case later collapsed when it was discovered that the information can be ordered from BellSouth for $13. The price of victory for Neidorf: more than $100,000 in legal fees.

Moreover, in March 1990, the Secret Service raided the home of Steve Jackson, who published role-playing computer games in Austin, Texas. The agents seized computers they said contained a "handbook of computer crime." The handbook was, in fact, an electronic game under development.

Jackson was not charged with any crime, but he said the prolonged disruption and seizing of equipment pushed his business close to bankruptcy.

A 'good' case

Government officials seem anxious to sponge away those memories. The FBI has long expressed the desire to prosecute a "good" computer crime case, and perhaps this is it, said Buck Bloombecker, director of the National Center for Computer Crime Data in Santa Cruz, Calif.

Officials think this could be that case. Assistant U.S. Attorney Stephen Fishbein said members of MOD were able to obtain unauthorized passwords and billing codes from switching systems at telecom companies such as Southwestern Bell to make free long-distance telephone calls.

At the FBI, DiFilippo said he expects other indictments could result and other victims could be found in the course of the ongoing investigation. That appears to have begun already. In a related action last month, Morton Rosenfeld and Alfredo de la Fe each pleaded guilty in U.S. District Court in New York to conspiracy to use passwords and other access devices purchased from MOD.

During the past few years, TRW and other credit-reporting agencies have become such frequent hacker victims that "it's no longer considered impressive to be able to get someone's TRW report," Murphy said. "It's too easy."

New probe under way

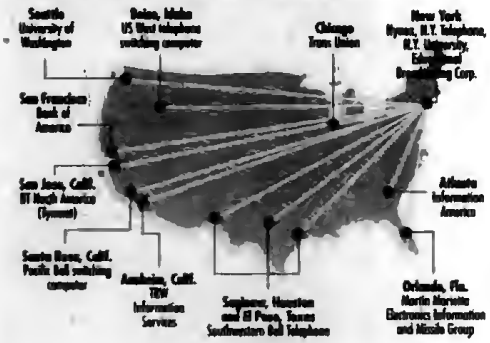
Law enforcement officials in San Diego are currently investigating computer system breaches into the credit-reporting network of Equifax, Inc. in Atlanta.

Last week's indictments could also possibly signal greater use of wiretaps in federal computer crime investigations. Already, there is legislation in Congress that, if passed, would allow federal investigators to intercept digital transmissions, said Otto G. Obermaier, U.S. attorney for the Southern District of New York.

Under current statutes, federal investigators can now intercept only analog transmissions, as they did in this case.

Hacking cross country

The hackers known as 'the Masters of Deception' allegedly gained access to computers from New York to California



The high-profile raid, however, may have little real effect on hacking in the long term. "Ultimately, the only purpose this will probably serve is that hackers will go deeper underground, which is a heck of a lot more frightening," said Ian Murphy, president of IAM/Secure Data Systems, Inc., a security consultancy in Gladwyne, Pa.

The arrests, however, may serve to wake some firms up to their security vulnerabilities. At many companies, the only security system is a poster above the copy machine that shows a dog with a moustache and a Sherlock Holmes hat, said David Stang, chairman of the International Computer Security Association in Washington, D.C.

Name game

Indicted last week were Mark Abene, known as Phiber Optik; Elias Ladopoulous, known as Acid Phreak; Julio Fernandez, known as Outlaw; John Lee, known as Corrupt; and Paul Stira, known as Scorpion.

The indictment charges that they were part of a close-knit group of hackers called MOD, an acronym used variously to mean Masters of Disaster and Masters of Deception.

Netherlands, Mexico chase after hackers

BY JAMES DALY
CW STAFF

Crackdowns on hackers and software pirates echoed from two corners of the international community last week as the Netherlands passed a tough new hacker law and Mexico instituted raids against Mexican computer dealers suspected of copyright infringement.

In the Netherlands, hackers now face up to six years in jail for illegally entering a secured data system. The law, which is expected to become official next spring, begins with a maximum penalty of six months' imprisonment for hackers who enter a secured computer system but gets progressively more rigorous.

Imprisonment can be as long as four years if data in the system has been changed and six years for hacking a system that serves a common use, such as a hospital database.

Critics contend that the proposal does not differentiate between internal and external computer crime. Cracking the password of a colleague, according to the law, can merit prosecution.

Hackers also said they believe the law will only increase the danger to computer systems because they will no longer give cheap warnings if a system has poor security.

In Mexico City, the Business Software Alliance and the Procuraduria General de la Republica — the Mexican federal attorney's office — raided two companies suspected of illegally reproducing software programs made by Microsoft Corp. and Autodesk, Inc.

Numerous machines and disks were seized at Comysa SA de D.V., Col Narvarte and Carbase de Mexico SA de C.V., Col Romero de Terreros in what was called the first salvo to fight widespread software piracy in Mexico.

The attorney general's office is in the process of evaluating the seized materials to determine if indictments are in order.

Illegally accessed sites boost security

Some victims of hacker infiltration are stepping up security measures at their companies to guard against further intrusion, if not lost revenue.

For example, the security breaches by MOD at Southwestern Bell cost the company $370,000, including the cost of locating programs that were modified or corrupted by the hackers and other expenses accrued toward the installation of new computers and security devices, according to Joseph Elstner, district manager for media relations at Southwestern Bell in St. Louis.

Elstner declined to give examples of new security devices installed by Southwestern Bell for fear of "tipping off" other hackers. However, he said the company has recently installed new security devices that automatically alert the host communications system when an unauthorized entry has been made.

At TRW Information Services in Anaheim, Calif., a spokeswoman said the firm has recently begun using new computer terminals in which passwords are "embedded" within the computer. She said most of the credit system users now have such terminals.

The TRW spokeswoman added that earlier published reports that computer hackers had altered TRW credit reports were erroneous.

"Hackers may enter the system, but by no means can they alter a credit report," she said.

The spokeswoman said she is not aware of any lost revenue as a result of the security breaches, and she said she does not know of any pending civil suits filed by any of the 176 TRW clients whose reports were allegedly stolen and sold by MOD to Morton Rosenfeld.

THOMAS HOFFMAN

Computer industry loses an important visionary

Businessman/author Charles P. Lecht succumbs to cancer

TOKYO — Charles P. Lecht — technologist, futurist, computer industry observer, businessman, writer and relentlessly curious intellect — lost a long battle with cancer July 3.

Even though this fight was a matter of public knowledge, the ending was still a shock. As longtime friend Marvin Minsky observed, "The world of computer science is so young that we still find it strange to recognize mortality."

Furthermore, "Charley" Lecht seemed somehow the antithesis of mortality. He was, Minksy said, a person who "saw opportunities everywhere and engaged in them with inspiring optimism and courage."

Since 1985, Lecht, 59, lived in Tokyo, where he operated Lecht Sciences, Inc., a research and development firm specializing in computer animation and graphics. This was, as Minsky described it, no ordinary enterprise, but "a sort of media laboratory" built around a "great gang of programming hackers and artist/animators."

From his base in Japan, Lecht also served as a correspondent for the IDG News Service, which supplies material to *Computerworld* and its sister publications around the world. This continued an association that began in 1977 with *Computerworld*'s publication of a series of Lecht's essays called "The Waves of Change."

Lecht — Lecht-o-san to many of his friends and colleagues in the U.S., Japan and places in-between — literally grew up in the computer industry.

In 1951, at the age of 18, he took a job as an operator of a hand crank-driven desk calculator for a defense engineering company. Later, he progressed to computer programming at IBM, MIT's Lincoln Laboratories and Mitre Corp. Two degrees in mathematics and a stint in the U.S. Army later, Lecht founded his own software house, called Advanced Computer Techniques Corp., which he ran for 20 years.

Boundless curiosity about technology and the future were lifelong characteristics. In the foreword to the latest of Lecht's six books — *The Information Tsunami: A Futurist Looks Back* — *Computerworld* founder Patrick J. McGovern recalled their first meeting in 1968.

Having been advised that Lecht possessed an incomparable vision of the future of computer technology, McGovern went to visit him in New York. What McGovern found at that meeting was an electric personality truly wired into the future.

"The person I encountered made an immediate and permanent impression," McGovern recalled. "His office looked like the back lot of a science fiction film, filled with robots, computer parts and all manner of futuristic toys. But the surroundings paled next to Charley himself, a diminutive, cigar-chomping package of intellectual energy, endless vitality and nonstop enthusiasm. Charley doesn't so much greet you as invade your senses."

It was probably that intense, focused interest in everything around him that made Lecht so adept at predicting trends in technology. He was an avid listener and a terrific assimilator.

This trait served Lecht well most of his life. Certainly it helped to make him, as McGovern put it, "one of the computer industry's most important visionaries." It allowed him to blend into a notoriously insular society and become that rare exception — a U.S. businessman who was able to connect and thrive in Japan.

On one occasion, however, this usually useful ability to meld worked just a little too well.

As longtime friend Webb Castor recalled, Lecht's intense concentration and unique mannerisms almost got both of them thrown into jail as spies by the Shah of Iran's secret police, the SAVAK. Charley did not speak Farsi, the language of Iran, Castor said, but something about the way he stroked his beard and hummed in a mantra-like way as he listened to them seemed to have convinced the Iranians that he not only understood them but was probably a spy.

Lecht *literally grew up in the industry*

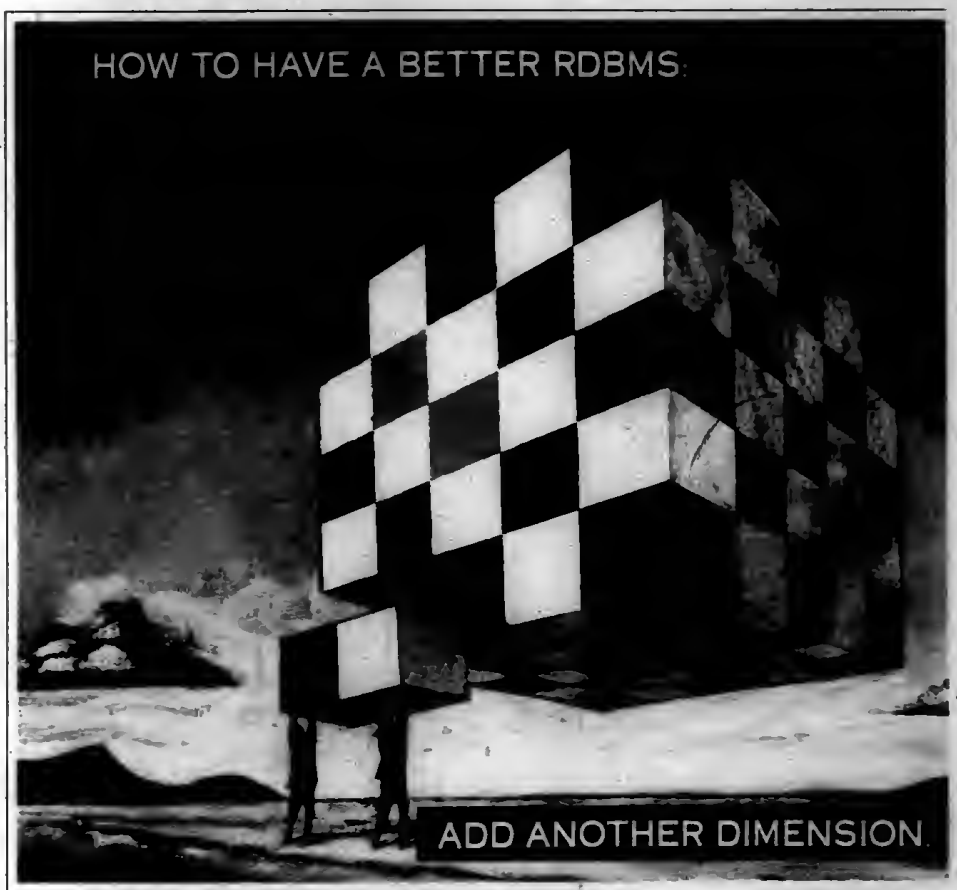
Castor and Lecht eventually got out of that hot situation and the country. Castor stayed a little longer, but recalled that his friend warned him not to linger too long because the Shah's reign would not last for more than four years.

That was 1975. The revolution came in 1979. It always paid to listen to Charley Lecht.

Lecht leaves his wife Suzanne and two sons, Eric and Jonathan.

Suzanne Lecht will continue to operate Lecht Sciences with Jaime Chee and Michael Levy, the creators of the company's latest product, a second-generation multimedia version of the Realtime Animation System.

JOANNE KELLEHER



There are a lot of relational data base management systems running on UNIX. Unfortunately, all have one thing in common. They were based on a mathematical premise, not a business premise.

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NEWS SHORTS

NCR offers management software

NCR Corp. last week unveiled a new generation of network management software. StarSentry Systems Manager 3.5 was designed to offer increased protection against network management failures and single-site control of networks that comprise multivendor computers. A lower cost option, Systems Manager/100, provides many of the same features and functionality for networks of up to 100 nodes. Based on Unix System V, Release 4, Systems Manager 3.5 supports Simple Network Management Protocol and costs $15,000. Systems Manager/100 costs $5,500.

Mail interface groups budge an inch

The X.400 Application Program Interface Association (XAPIA) last week said it would consider Microsoft Corp.'s recent recommendation to define a more generic messaging application programming interface than one dedicated to X.400 standards. XAPIA Chairman Ed Owens said the initial idea is to provide a basic mechanism for sending a message across multiple disparate messaging APIs. The XAPIA will query users on their needs at upcoming Electronic Mail Association meetings.

Group addresses child, elderly care

Twelve blue chip firms are working together to improve the quality of child and elderly care nationwide. Participants include initiator IBM, AT&T, American Express Co., Xerox Corp., Exxon Corp., Eastman Kodak Co., The Travelers Corp., Johnson & Johnson, Amoco Corp., the Allstate unit of Sears, Roebuck and Co., Motorola, Inc. and NationsBank Corp. The plan involves "a more coordinated approach, working at the community level to improve and expand existing programs and create new ones," AT&T said. The companies would not yet detail funding levels or name the targeted communities.

Vive la telecom!

Northern Telecom, Inc. bought an initial 20% stake in Matra Communication, a division of French holding company Matra Group. The two firms will launch 50:50 joint ventures in radio communications and public network switching equipment. Northern Telecom will also merge its French private branch exchange marketing, sales and service groups into Matra Communication.

TCP/IP embroiled in standards tiff

A barrage of electronic protest memos last week greeted the Internet Advisory Board's recommended course for correcting the currently limited address space of Transmission Control Protocol/Internet Protocol (TCP/IP). In a memo, the board reiterated its stance that the community should adopt a new architecture based on the Open Systems Interconnect (OSI) Connectionless Network Protocol. Members objected, saying that other proposals now on the floor deserved consideration and that migrating to OSI-based addressing would require major revamps of all TCP/IP networks.

Short takes

Executive information systems maker **Pilot Software, Inc.** is set to merge with **TechGnosis International, Inc.**, a Boca Raton, Fla.-based firm that makes a data access tool for SQL databases. . . . John M. McLoone, 49, has left his position as vice president of information technologies in the Grace Specialty business at **W. R. Grace & Co.** in Boca Raton, Fla. He has joined Handy & Harman, a New York-based precious metals fabricator and refiner, as vice president of financial services. . . . Paul Low, who retired last month as **IBM**'s top semiconductor executive, was named an advisory partner at the venture capital group of Weiss, Peck & Greer International Fund, a New York-based investment company. The 35-year IBM veteran will act as a consultant for the development of the company's computer operations and evaluate new technology investments. . . . **Unisys Corp.** was awarded a $3 million contract from the **Algerian Bank of Agriculture and Rural Development** to install a Unix-based network supporting more than 300 Unisys U6000/15s and U6000/35s.

Oracle plans secure database

Could appeal to federal users who want multilevel security in one place

BY JEAN S. BOZMAN
CW STAFF

REDWOOD CITY, Calif. — In a bid to boost its appeal to federal government users, Oracle Corp. is expected to announce a secure version of its Oracle 7 relational database, called Trusted Oracle 7, tomorrow, Oracle sources said.

Trusted Oracle will provide multilevel security in a single, integrated database, analysts said. Individual users will be able to view data stored in the database rows and columns based on their personal security clearance. This will allow federal agencies to move away from a long-held practice of holding data in many physically isolated databases.

"Oracle needs to have Trusted Oracle to get the federal business," said David McGoveran, president of Alternative Technologies in Boulder Creek, Calif.

Linda Vetter, vice president of Oracle's Secure Systems Group, said Trusted Oracle would be marketed to federal agencies and to companies that wish to protect sensitive data. "Government agencies need it for classified information," Vetter said, "but the point is that the software is designed to keep sensitive data separate from other data. That could include company-proprietary information or accounting information."

Michael Abbey, a database analyst at the Auditor General's Office in Ottawa who chairs Oracle's Affinity program for top users and Oracle executives, said there will be commercial applications for the secure product, along with law enforcement and tax uses.

It is unclear when beta testing, which began last month, will end. But Vetter said Trusted Oracle will be shipped to customers within 90 days of Oracle 7's expected release this fall.

Shielded data

Database vendors are scurrying to secure their products

Vendor	Product name	Date of shipment	Security rating sought
Sybase	Secure SQL Server	1989	B1
DEC	SERdb V4.1	1992	B1
Informix Software	OnLine/Secure 4.1	1992	B1*
Oracle	Trusted Oracle 7	1993	B1*

*Trusted Oracle and Informix OnLine/Secure are currently being evaluated by the National Computer Security Center (NCSC) for a B1 rating. None of the relational databases above have received an official NCSC rating yet.

Source: Vendor information

CW Chart: Janell Genovese

Trusted Oracle has been under evaluation by the National Computer Security Center (NCSC) for the B1-level security rating for a year. The Oracle 7 database has also been submitted to the NCSC for a C2 rating.

The U.S. government maintains security guidelines, labeled by number and letter combinations, in a so-called "orange book." C ratings are lower than B ratings, and higher numbers indicate higher levels of security.

The four major access-control labels used by the U.S. government are classified, confidential, secret and top secret.

Even Trusted Oracle and its B1-level database competitors may not be used to handle the highest levels of classified data, some experts said. "B1 is the lowest level at which you have mandatory access control labels for secret and top secret data," said Stephen Crocker, vice president at Trusted Information Systems, Inc. in Glenwood, Md.

Crocker said federal agencies would welcome the ability to gather data from isolated databases into a B1-level integrated database and also intermix data of varying security labels in unified databases.

Oracle did not provide pricing, but users expect to pay a premium for the secure version.

Informix emphasizes tools at user show

BY JEAN S. BOZMAN
CW STAFF

SAN JOSE, Calif. — Users of Informix Software, Inc. products, most of whom acquired Informix databases through a value-added reseller, came to the firm's first worldwide user conference last week to shop for software tools.

"I'm looking for CASE tools and application software packages," said Yona Bik, a computer manager at Diesenhaus, an Israeli travel agency in Tel Aviv, echoing a response heard from a number of the 1,000 Informix users in attendance. Bik was also shopping for multimedia tools for personal computer-based video travelogues. "I'm interested in everything, especially in tools. We're networking our PC boxes together," he said.

Informix demonstrated its latest set of Informix fourth-generation language (4GL) extensions, announced earlier this month. But it also showed off an eclectic set of unannounced tools in the conference exhibit hall, including the following:

- **HyperScript**, a development language for graphical applications formerly bundled with the Informix Wingz graphical spreadsheet. Targeted at end-user query applications such as executive information systems, it will be announced with Wingz 2.0 this fall, Informix said.
- **Storm**, an icon-based query environment that requires the aid of IS programmers. IS personnel prepare special "views" of the database, which users customize with a point-and-click editing system. End-user queries will be glued together from these icon-based menus. The first versions of Storm, to be announced this fall, will support OSF/Motif and Microsoft Corp.'s Windows.
- **Informix 4GL++**, a version of the Informix 4GL tool kit with object-oriented extensions, slated to debut next year. Informix Chairman Roger Sippl told industry analysts that object-oriented tools will be the vehicle of choice for adding object-oriented features to relational databases. Informix 4GL++ will run against Informix and other relational databases as an "open" tool.

Informix Chief Executive Officer Phil White said the $179 million company has every intention of optimizing its tool sets for open systems applications and no intention of building its own computer-aided software engineering (CASE) tools. Informix decided last year to market a licensed version of Hewlett-Packard Co.'s SoftBench as a framework for third-party CASE tools. The plan is to use Informix's capital sparingly as it competes with several firms of equal size — and with $1.1 billion Oracle Corp.

"We're trying to focus on the user's ability to deploy new applications," White said. "We're focusing on our core technology of engines and tools and banking on lots of technology from other companies."

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We make the most complete
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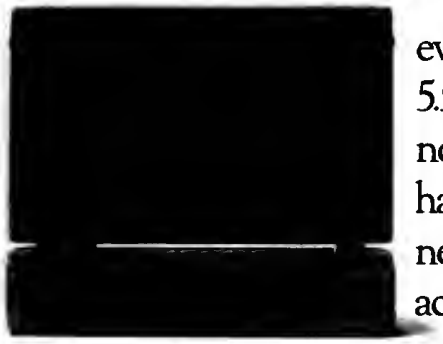
When your job description includes buying portable computers by the tens, twenties, thirties and hundreds, you naturally want to know a bit more about the company that makes those computers than you'll discover by reading their spec sheets.



T6400DX

(Although our spec sheets do make excellent reading.)

T2200SX

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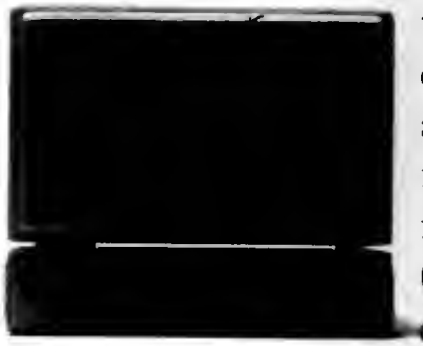

We also provide the broadest range of accessories—adapters, modems, memory cards—to make your portables (amazing as it sounds) even more useful.

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line of portable computers. every one of them.

T4400SXC

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Tech policy weighed

CONTINUED FROM PAGE 1

aggressive trade policies, stronger intellectual property right protections and a freer flow of technology from government laboratories into the commercial world.

Those calling for a stronger government/industry partnership simultaneously warned of a heavy government hand.

"As a technology industry, we have problems with both parties," Maibach said. "The Democrats want the government to play an active role, but the danger is they will want to drive the policies. The Republican Party understands that business does not want more regulation, but it needs to realize that in the age of information and technology and a global trading system, we have to have government as an ally."

Yet company executives said the candidates are not paying attention to key industry concerns. "None of the candidates is focusing on our national technological competitiveness," said Merrill W. Buckley, president of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). "We need a coherent, national technological policy, a national plan, strong trade and tax policy."

Others, such as Jerry Schneider, founder and director of the Association of PC User Groups, would like "a cabinet-level science/technology adviser with a lot of clout and some mechanism for getting more ear play for industry and user problems."

Enthusiasm needed

Regardless of the specific agenda, users and vendors expressed a common desire, which Maibach summed up: "What we want from the next president is some enthusiasm and the will to win the technology battle — not benign neglect."

Fear of such neglect may be tied to a lack of understanding about just where the White House stands on issues of technological competitiveness.

Those taking part in a recent public debate on U.S. technology policy, co-sponsored by *Computerworld* and Computer Associates International, Inc., started from a common assumption that the country has none. But days later, Robert M. White, undersecretary for technology at the U.S. Department of Commerce, said rumors of a nonexistent national policy were greatly exaggerated. As proof, he offered a reporter two volumes: "U.S. Technology Policy" from the White House Science Office and "Strategic View" from the Technology Administration of the Commerce Department.

It is true that Bush has consistently argued for free market solutions to the country's economic problems and has rejected calls from Democrats and industry executives for broad federal programs to support specific industries. However, despite the rhetoric, the administration has taken a number of steps to push the government closer into a partnership with business: providing funds to industry consortia such as Sematech; supporting the High Performance Computing and Communications initiative originally crafted by Congress (which includes a proposal for a national data highway); and turning in double-digit budget increases for the science and technology agencies.

White: *U.S. has high-tech policy*

"We have this unusual situation that President Bush is actually doing more than he's promising, which is an incredible thing for a politician," Lewis M. Branscomb, a professor at Harvard University's John F. Kennedy School of Government and former chief scientist at IBM, said at the debate. "It's kind of a stealth policy."

But the administration's creep toward technological activism comes without a grand plan to pull it all together, a number of observers said. "It's false to say that you can win at football without a team strategy, if you just deal with individual steps on the playing field," said Craig Fields, chairman of The Microelectronics and Computer Technology Corp., an Austin, Texas-based electronics and computer science research consortium.

Apparently ready for a change — but not to Clinton — are members of the American Electronics Association (AEA). More than half of those responding to a recent poll said they would vote for Perot in November. Just 29% said they would give Bush the nod, and a scant 4% support Clinton.

AEA President J. Richard Iverson acknowledged he was surprised by the strong Perot showing, saying it may indicate that AEA members — mostly smaller companies — are blaming Presidents Bush and Reagan for the banking fiasco that has left credit scarce for high-tech start-ups. He also credited Perot's 30-year background in computer services and systems integration.

Perot is also the only presidential candidate ever to ask the Association for Computing Machinery for its views. Perot has also queried Fields on his views on competitiveness.

Weak response

But the candidates' overall record in soliciting industry views is mixed. In April, the IEEE sent a list of 10 questions to the candidates, probing their views on matters pertaining to a number of issues including technology. Only Clinton has responded, although the Bush campaign said it will.

Responding to Clinton's call for a civilian technology agency patterned after the billion dollar-per-year Defense Advanced Research Projects Agency, White said, "We have it now. The Advanced Technology Program [ATP] meets those needs." The 2-year-old ATP gives grants to firms and consortia for research and development in new technologies with broad applications. Funded now at $47 million, the White House has requested $68 million for 1993.

The next president will need to do at least three things to satisfy the high-tech community: take steps to improve the economy, embrace fiscal policies that encourage long-term investments in technology and create an environment in which Uncle Sam is seen as an ally, not an obstacle, in the increasingly tough battle for global preeminence.

Technology seeding

High-profile, high-tech executives have made political donations

BUSH

Kenneth W. Dam and Robert J. LaBant (IBM).

Robert E. Allen (AT&T); Craig R. Benson and S. Robert Levine (Cabletron); Earl F. Wheeler and Ned C. Lautenbach (IBM); Ryal R. Poppa (StorageTek); Jerry Sanders (AMD); Theodore J. Smith (FileNet).

John F. Akers, Walton E. Burdick, James A. Cannavino, Terry R. Lautenbach, Paul R. Low and Stephen B. Schwartz (IBM).

CLINTON

John Sculley (Apple).

Paul A. Allaire (Xerox).

Compiled by Mitch Betts

CW Chart: Stephanie Faucher

Read our lips

The high-tech community had the following tips for the candidates:

Michael Maibach, *director of government affairs at Intel Corp. and until recently a candidate for Congress:*

• "We need intellectual property protections, a good trading system, open markets, good tax and fiscal policy. Government must be a partner with industry because the ingredients of competitiveness are so policy-driven."

Riley Repko, *director of government affairs at Oracle Corp.:*

• "I'd like to see a greater awareness of the uses of technology for solving social problems such as health care."

Mitch Kapor, *founder of Lotus Development Corp., chairman of On Technology, Inc. and president of the Electronic Frontier Foundation:*

• On the campaign: "None of our issues are of the kind of absolute, first-rank, national urgency that they need to elbow their way into the presidential campaign."

• On a president: "I'd like to see him take an active interest in privacy and [communications] infrastructure issues."

Craig Fields, *chairman and chief executive officer of The Microelectronics and Computer Technology Corp.:*

• "The fixation should not be on what are the ideas because there are so many good ones around. It should be on implementation. We can debate endlessly and fail."

Roger Sippl, *chairman of Informix Software, Inc.:*

• "Who should come up with technological policy? Not Congress, not politicians. They are just going to screw it up. They're going to get lobbied by somebody, and they're going to get pork-barreled." Sippl said the private sector should define and shape technological policy.

Posturing for the high-tech vote

Bush

Technology: Significantly boosted federal funding for research and development and supported some modest government/industry partnerships. Rejects a broad industrial policy.

Taxes: Wants a permanent R&D tax credit, possibly with an expanded definition of R&D; favors a broad capital gains tax cut.

Trade: Endorses free-trade agreement with Mexico; vows to further relax computer export barriers; has won promises from Japan to buy more U.S. chips and computers; rejects "protectionism."

Clinton

Technology: Would create a civilian R&D government agency, develop "smart" highway technology, build a national fiber-optic data network by 2015, offset reduced defense R&D with increased civilian R&D and start a support agency for defense firms hit by budget cuts.

Taxes: Favors a permanent tax credit for R&D and a 50% cut in capital gains tax on long-term investments in new businesses.

Trade: Would toughen penalties for unfair practices. Supports president's proposed free-trade agreement with Mexico.

Perot

Technology: Philosophically closer to Clinton than to Bush, Perot favors stronger government/business/labor partnerships and significantly increased federal funding for education, training and R&D; wants government to help develop specific plans to ensure viability of key industries.

Taxes: Favors a permanent R&D development tax credit and a capital gains tax cut for small start-up companies.

Trade: Favors tough trade policies; criticizes Bush's proposed free-trade pact with Mexico.

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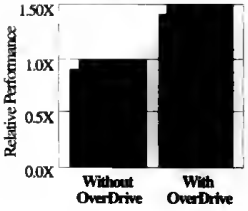

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ADVANCED TECHNOLOGY

TECH TALK

Electronic meeting

■ If you want to talk about futuristic technologies, you might as well use state-of-the-art technology to run the meeting. The Institute of Electrical and Electronics Engineers, Inc. (IEEE) plans to run a videoconference to explore the use of virtual reality and other computer technologies as educational tools. New York-based IEEE says the Sept. 30 broadcast is intended to provide a glimpse of tomorrow's workplace. Presenters will be from organizations such as the U.S. Department of Defense, the University of California at Berkeley, Intel Corp. and the University of Central Florida's Visual Systems Laboratory. Key topics include computer aids for product design, computer aids for manufacturing control and virtual reality for planning, training and education.

In the running

■ Organizers of the 1992 Gordon Bell Prize competition have selected finalists for the award honoring significant achievements in the application of parallel processing for practical scientific and engineering problems. The winners, to be named during the High-Performance Computing and Communications Conference Nov. 16-20 in Minneapolis, will come from the following: A team from the Jet Propulsion Laboratories in Pasadena, Calif., and Intel Corp. for work on electromagnetic scattering calculations; a team from the Swiss Federal Institute of Technology for a multisignal processor system with intelligent communications; a team from Argonne National Laboratory for work on large, sparse systems of linear equations in massively parallel applications; a team from Purdue University and Emory University for super-concurrent simulation of polymer chains on heterogeneous networks; and a team from Los Alamos National Laboratory and the California Institute of Technology for "Astrophysical N-Body Simulations at 5.4 GFLOPS."

Setting stage for future work force

Electronic teaching tools today may force corporations to change their ways tomorrow

BY CHRISTOPHER LINDQUIST
CW STAFF

What did you do in school today?

For most of us, the answer would have been something along the lines of drawing some pictures or reading a book or, if we were lucky, maybe taking a field trip. In the not so distant future, however, the answers might also include taking a tour of the human nervous system or talking about dinosaurs with an archeologist at a dig site thousands of miles away. Such are the prospects that today's technology could bring to the classroom of tomorrow.

They are prospects that information systems managers and other business executives may have to consider as they prepare tomorrow's corporation for the entry of today's student.

Students are going to be exposed to training techniques beyond being lectured to, reading books and occasionally seeing a film. Students may use networked and stand-alone multimedia workstations in conjunction with bar-coded textbooks that interactively call up additional audio, video and text information with the flick of a light pen.

They may become used to going on "electronic field trips" with thousands of other students through the use of satellite television and broadband networks. They may even someday use virtual reality to walk through a human body to examine an immune system. And when they enter the work force, they will expect similar training from their employers.

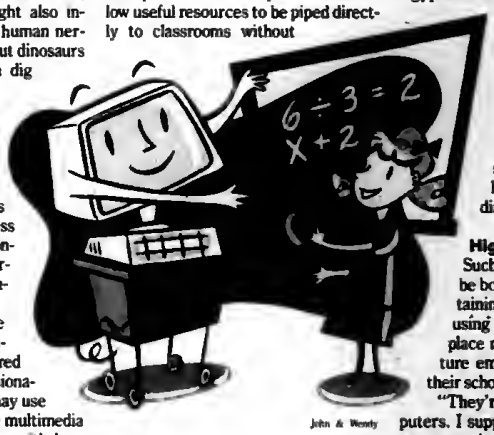
Radical learning changes

"The technology will really change how we look at the learning process and the education process," said Frank B. Withrow, team leader for the Technology Applications Group in the U.S. Department of Education's Educational Research and Improvement Division. Gone will be the "master teachers," and in their places will be "coaches" who will sit beside students.

"The classroom of the future will have a handful of networked PCs and a teacher's multimedia computer linked into the school network," said Nelson Heller, publisher of the "Heller Report on Educational Technology and Telecommunications Markets" in Highland Park, Ill. Such a setup would allow the teacher to use the system both for lecture support and for self-paced learning sessions.

Other noncomputer technologies will also have a dramatic impact on schools. Many of today's schools are being built to accommodate broadband fiber-optic or coaxial networks that will be used to connect both computers and audio/visual systems within the school and to outside information resources.

Media centers will be set up with all the necessary audio and visual equipment — videocassette recorders, film projectors, stereo systems, cable and satellite television — and classrooms will each contain large-screen monitors and speakers. Such a system would allow useful resources to be piped directly to classrooms without large amounts of equipment being transported and would also let classes interact with one another.



John & Wendy

A program along those lines has already been tried, Withrow said. Students in Fairfax County, Va., were connected to students in East and West Germany during the dismantling of the Berlin Wall. Such "distance learning" techniques are expensive, but part of the cost can be borne by other schools that are able to watch the proceedings on satellite TV.

Beyond even these electronic excursions are the exciting possibilities of virtual reality. While TV transmissions are limited to the tangible physical world, virtual reality knows no boundaries but the imagination — and cost. Such systems are generally expensive now, but companies such as computer-aided design and engineering software vendor Autodesk, Inc. are beginning to produce systems that will become more affordable in the near future. With cost out of the way, the possibilities would become nearly limitless. "Visit the Egyptian tombs — then you could explore the human anatomy," Heller said.

He also cited Videodiscovery, a firm in Seattle that produces videodiscs for use in education, including one that can be used with a special pair of glasses that lets students view a three-dimensional human skull.

High expectations

Such systems will obviously be both educational and entertaining. And students taught using them will most likely place new demands on their future employers to keep up with their schools.

"They're going to expect computers. I suppose they're going to expect a continuing effort both to supply them with the tools they need and to keep them up to date," Heller said.

One thing they may not expect, however, is classrooms. As national electronic communications networks improve and the telephone companies are given more freedom to provide services, students of any age may soon be able to simply dial a phone number and receive multimedia lessons on nearly any subject, Withrow said.

"Down the road maybe a decade from now, learning experiences can as easily go into the home, the school or the workplace just by dialing up," Withrow said. "It's going to enhance our concept of lifelong education."

Fast track 101

A variety of companies are providing advanced technology for use in schools. Among them are the following:

• Apple Computer, Inc., in conjunction with EdMark Corp., has created the Apple Early Learning Connections program that combines EdMark's TouchWindow touch-sensitive conversion kit for Macintosh monitors with a compact disc/read-only memory drive, a scanner, a Macintosh LCII and a printer to teach language skills to young students.

• Jostens Learning Corp., based in San Diego, produces a line of network-based educational tools called the Interactive Media System. The hardware- and software-based products include The Card, a combination audio, video, digital video interactive and network card that provides a personal computer with the functionality necessary to view multimedia educational applications. The company also produces a server for use in the networks that provides 1.2G bytes of disk storage for video, audio and text files.

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EDITORIAL

Open season

Technology Investment Strategies' report on open systems, released last week, is a stinging rebuke of the "open" strategies put forth by major vendors.

The Framingham, Mass.-based consultancy outlines in detail a market reality where confusion has become a competitive weapon for the vendor community. The victim of the confusion, the report states, is the customer, whose interests are anything but a top priority to suppliers bent on disguising what look like proprietary solutions as products imbued and endowed with the spirit of openness.

States the report, "Each vendor's use of the term 'open systems' will express the vendor's best interest, usually in terms of some technology. . . . The viability of any [open systems] analysis that centers on a vendor's best interest will, like the tides, come and go as a vendor's products gain and then lose interest and use within the user community." In other words, openness is in the eye of the beholder. And that's a finding that is tough to argue against.

Caught up in the maelstrom and confusion is the poor user, who, the report contends, is in danger of being misled. The user needs a road map to avoid following any number of different open systems strategies to proprietary dead ends. What assumptions can customers make in this environment?

For starters, all vendors serve their own best interests. As the report shows, Microsoft's open systems strategy rests on its own operating systems. The heart of DEC's open systems strategy is a VAX/VMS server platform. Oracle's open systems strategy is predicated on its own DBMS and tools. And so on.

In fact, almost every vendor's view of openness is laced with its own proprietary view of the world. Does this fit your definition of openness?

Another good assumption to make is that open systems is a dynamic concept, not some static be-all and end-all goal. Openness is a word most synonymous with "choice," not with "Unix," and in today's world, choice for the users most often means preserving the information technology investments already made.

Finally, the report advises that users envision yellow caution flags when a vendor talks about open systems not with a business focus but with a technology focus. This is perhaps the greatest underlying weakness of, and greatest challenge for, many PC software companies that traditionally sold their products through third parties but now must influence IS buyers directly. Many of these companies are struggling to address computing as part of the business imperative, and in that struggle, they often default to pushing technology in search of solutions.

Bill Laberis

Bill Laberis, *Editor in chief*

LETTERS TO THE EDITOR

How we can really help the FBI spy on us

"FBI seeks right to tap all net services" [CW, June 8] says that "FBI officials complained that many businesses today are incapable of providing such intercepts, so legislation is required to force changes. . . ."

I suppose this would mean not only that a local computer club with a one-line bulletin board service would have to get a second line so the FBI could intercept club member communications but also that the club members would not be allowed to exchange any communications that could be interpreted as encrypted: zipped and arc'd files, machine code programs, data tables, etc: In distributed processing environments, I suppose the requirements would be greater.

This would mean that in the two- to three-PC network I have in my office at home, I would have to make arrangements for the FBI to observe the transmissions between my PCs in both the MS-DOS and the Unix environments. I guess I can't even transmit programs between my machines because they could contain encrypted data.

I have a modest proposal.

Let us develop a lattice grid over the entire country. Every 10 ft in every direction we place a microphone. This microphone grid can then report everything that is going on to the FBI. Special computers that monitor digitized speech can be used to track the speech patterns of only those people whom the FBI wants to follow (criminals and opponents of the proposed bill, for example, but I don't have to worry because this letter doesn't oppose the bill).

Then we can rest assured, when we go to sleep at night, that the FBI is there to be sensitive to the dreams of a nation at rest.

William R. Patterson
Stratford, N.J

A pill that it would be wise to swallow

Regarding "Under the gun: Pentagon wields IS strategic weapon" [CW, June 8]: Corporate America tends to regard the branches of government as separate entities that share little besides tax revenue. However, Paul Strassmann's goal is a centrally managed system, with information and information processing provided to networked users as a utility.

However, this is a pie-in-the-sky view; with "bureaucratic inertia" and "interservice rivalries," the "largest information technology reform ever taken" will take a large dose of discipline combined with commitment and a generous helping of hard work.

And that recipe seems hard for the corporate sector to swallow. One source in the article said he "wishes he could be there without getting there." It's like losing weight. Sure, we'd all like to be thin, but who wants to eat right? Who wants to exercise? Most of us would rather skip meals, take diet pills or drink shakes to lose weight.

We all face the same problems the Pentagon has; however, it is "under the gun" and is creating a detailed plan of attack. Can corporate information systems management really afford to do any less?

Dianne Sherman
Palm Harbor, Fla.

Money talks

The frustrating experience of Alan Radding [CW, "The mail-order CPU upgrade from hell," June 15] is not a new experience.

It appears that Radding got what he paid for. He opted to solve his needs with a solution of hardware, but, by his own description of his problems, he lacked the expertise to perform all the needed services and obviously required the technical services of a reseller familiar with the hardware and means to upgrade the system.

In addition, the mail-order firm's underlying support organization was obviously nonexistent, and for a good reason — it costs money to provide this, money Radding was unwilling to spend. If you want a functioning automobile, purchase it from dealer that can provide the support, not a shop that will assemble one for you with a collection of components.

Thomas J. Decker
Pompano Beach, Fla.

Computerworld *welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor in Chief,* Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MCI Mail:* COMPUTERWORLD. *Please include a phone number for verification.*

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Melting frozen productivity

MARK G. BARMANN

In executive suites across the country, probing questions are being asked about the enduring value of millions of dollars invested in vast portfolios of computer applications. Exactly what do we have to show for all that investment?

All too often, the answer is, "Not very much that's usable."

The image that keeps coming to my mind is that of a frozen rope. Over time, business work flows have been captured in code and preserved there, past their useful life. Now splices, handcrafted with numbing complexity, link parts of processes in odd and unyielding shapes that are solidly resistant to all but superficial change.

This is why efforts to rearrange work flows are so often thwarted. Unbraiding this solidly frozen coil will take immense work and expense.

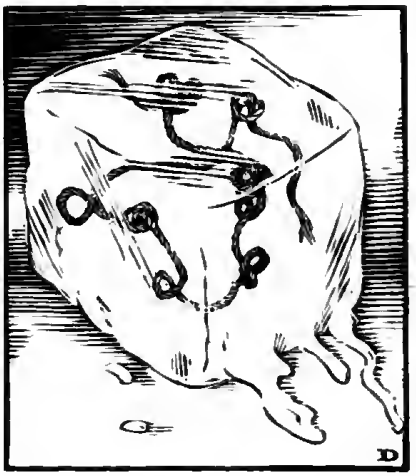
Stuck in old patterns

What we've done wrong in the past isn't the only thing standing in the way of our achieving real productivity. We're still making mistakes, repeating those old patterns. Corner-cutting in the design and construction of systems is rampant under mandates for rapid implementation. Indiscriminate selections of packaged software introduce persistent anomalies. Primitive development tools thwart higher level approaches to design and construction. Performance constraints imposed by traditional processors severely limit the range of possible solutions.

And, far from the least of the problems is the fact that work processes within our IS organizations are often frozen into ancient shapes themselves.

I know all of this firsthand. I've been through it in spades. But, I also know that things needn't be this way any longer.

New approaches can make a difference. Model-based analysis frees designers from the constraints of the past and exposes the needless intricacies and redundancies so rife in today's systems. Emphasis on reusable components can bring order to application development. Distributed processing can help with the even more challenging goal of distribution of allied data.



Bob Hahn

We must use network-based computing toward those ends. We must seize on open systems that now exist and work to guide vendors toward more complete realizations of the open promise. We must use processors with speed, size and cost characteristics as diverse as the tasks they support.

Finally, we must recognize that what lies ahead is as much a cultural revolution as a technological one. We must encourage unconventional thought and cultivate dissidence. We must be favorably disposed to discovery and tolerant of setback, dealing constructively with the organizational dysfunction that almost inevitably comes with change.

As John Maynard Keynes once said, the real difficulty in changing the course of any enterprise lies not in developing new ideas but in escaping from old ones. But if we are going to find satisfactory answers to those questions from the executive suite, we have to escape the noose we have fashioned for ourselves from that frozen rope.

Barmann is executive vice president and CIO at Charles Schwab & Co. in San Francisco.

The dangers of selective information sharing

RANDALL C. KENNEDY

Nondisclosure agreements (NDA), once sacred pacts of secrecy between vendors and their "special" customers, have come under fire recently from many angles.

Why all the furor? Because NDAs, like most other "agreements of trust," are subject to abuse once they are exposed to the predatory world of a free-market economy.

NDAs are very "in" these days. Every vendor has somebody, somewhere, testing that hot new release or that much-anticipated update under vows of silence. Not only vendors but consultants, end users, even whole IS shops have jumped on the beta-testing bandwagon. And, as NDAs and their accompanying beta-testing programs have increased in popularity, so have the opportunities for abuse.

A good example of this can be seen in the way that more and more companies are using NDAs as political tools in an attempt to gain an advantage over their competition. The recent Microsoft/DR DOS debacle seems to fit this pattern almost to a "T." Digital Research needed access to the Windows 3.1 beta code to ensure that its product would be compatible, yet Microsoft steadfastly denied access to the code.

When questioned about this subject, Brad Silverberg, vice president of Personal Systems at Microsoft, commented that "Digital Research chose to make a living cloning Microsoft products, like MS-DOS," and this justified its omission from the beta-test program. At the same time, however, networking products competitor Novell was allowed to participate.

AS NONDISCLOSURE agreements and their accompanying beta-testing programs have increased in popularity, so have the opportunities for abuse.

The industry perception of why Microsoft chose to accept Novell yet reject Digital Research was that Microsoft could not risk producing a Novell-incompatible version of Windows but had nothing to gain from accommodating Digital Research.

Regardless of the motives involved, it is easy to see how this kind of "political favoritism" can have serious ramifications for customers. As vendors bicker over access to critical code, we pay the price in the form of incompatible software and delayed ship dates.

Beta snooping

Another way in which the NDA concept is being abused is through what is commonly referred to as "beta snooping." It seems that when it comes to a competitor's beta products, many vendors have thrown the common laws of good business ethics right out the window.

I was shocked recently when, during the course of a discussion about a newly released Windows communications product, a representative from a small independent software vendor (ISV) announced that he had been "playing" with this product since its early beta-test stages.

Because this person's firm was a direct competitor to the vendor whose product we were discussing, I was intrigued. When I pressed him for details, he admitted that he had accepted an offer from one of the competitor's beta-test sites to examine the prerelease software.

The ISV rep's actions were in total violation of every moral and ethical guideline of business behavior, yet he showed no signs of remorse. Sadly, this is rapidly becoming the norm. Furthermore, while it is easy to concentrate on the ISV's wrongdoing, we must also remember that it was the beta-test site that initiated the exchange and that it did so in direct violation of a legal, binding agreement. As a result, it both violated a trust and opened itself up to litigation.

So what are we to make of this "NDA dilemma"? Basically, that there's much more at stake here than a chance to play with the latest and greatest in bug-ridden prerelease software or to be quoted in a trade rag as an adventurer of the "bleeding edge" variety. These agreements can be fraught with ethical and legal pitfalls, and if IS is going to participate in such programs, it must do so in a politically savvy and morally responsible way.

Kennedy is a contributing editor to *Wugnet Journal* and a technical associate at large. You can reach him via CompuServe at 76437,1041.

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IN BRIEF

Poqet change

■ **Poqet Computer Corp.**, which manufactures sub-2-pound portable and pen computers, has changed its name to Fujitsu Personal Systems, Inc. to reflect its owner, Fujitsu of Japan. The renamed company will remain based in Santa Clara, Calif. It also announced that it will resell HyperPad for Pen Computers from Brightbill-Roberts & Co. HyperPad, a development tool, will sell for $595.

■ **Chevron Corp.'s** Information Technology Co., which handles internal information systems for the multinational petroleum company, said it would make Courier V.32bis modems from U.S. Robotics, Inc. its internal standard.

■ **Hayes Microcomputer Products, Inc.** recently introduced new products and cut prices. Hayes' new Optima 96 + Fax96 and Optima 24 + Fax96 fax/data modems were introduced for $419 and $169, respectively. They will ship in the third quarter. Hayes also announced that it has reduced prices on its Optima family of data-only modems by up to 20%.

Windows word processing a tricky move

Windows users embrace environment but are wary of migrating critical applications

BY CAROL HILDEBRAND
CW STAFF

Microsoft Corp.'s Windows operating system is selling with gusto, but when it comes to migrating critical applications such as word processing, users are exhibiting considerably more caution.

With word processors being the most widely used category of software, upgrading an installed base can be tricky. And moving to Windows can be exponentially more so, as users have to grapple with an entirely new interface as well as with performance issues.

Of five user sites surveyed about their current involvement in both the DOS and the graphical user interface world, a number of issues were flagged as factors to take into consideration when planning either a wholesale migration or an attempt to exist in a hybrid world.

MANY USERS need help unlearning muscle habits ingrained from years of DOS use.

The first issue users brought up was platform shortcomings. With Intel Corp. 80386 machines necessary, at minimum, most sites do not have the hardware capabilities for a wholesale migration. So users are trickling over as hardware gets upgraded and as business needs dictate.

Read Gilgen, director of learning support services at the University of Wisconsin at Madison, said its gradual migration was mandated by hardware constraints. "It's hardware-related more than anything else," he said. "In our academic environment, we don't have the budget and authority for a wholesale migration."

Peter Dalton, a partner at Dallas-based law firm Jackson & Walker, said that the company's hybrid environment is a partial result of hardware. Lawyers generally have the higher powered boxes while support staff remains on DOS, he said. If they gave Windows to everybody, he said, "We'd have to upgrade hardware, get better monitors, buy mice; so for the foreseeable future, we'll be a hybrid environment."

With users in both the DOS and Windows camps, smooth file compatibility between the two also crops up. "We have to have it," said Linda Deinberg, a network manager at Fujasawa Pharmaceutical in Deerfield, Ill., who added that the firm's decision to remain with WordPerfect Corp.'s namesake product was in part predicated on this.

Compatibility is also helpful in the learning process. Users tend to keep copies of both DOS and Windows word processors as they are learning. Gilgen said that he used the two on about a 50-to-50 ratio for his first six months of learning. When speed was of the essence, he would switch back to DOS to really crunch out the documents.

Speed, in fact, was an issue mentioned by nearly all of the users. Graphical word processors are generally slower than their DOS counterparts, and heavy users may be resistant to change. Jeanne Hale, a systems analyst evaluating products at Chevron Information Technology Co. in San Ramon, Calif., said that when it comes to the company's real heads-down word processors, migration will be slow. "For some of them, it's hard to take their hands off the keyboard and move to the mouse," she said.

Chevron, like most of the others, is moving its users to Windows as they get hardware-capable — and also if there is a business need. "If all they've purchased a PC for is Lotus and WordPerfect, they may not get Windows because it's not based on a business need," Hale said.

With the new environment also comes training challenges. Many users need help unlearning muscle habits ingrained from years of DOS use. For example, several users cited WordPerfect's offering of two different keyboards for its Windows product. Users can start on a DOS-compliant keyboard, and as they get more Windows-savvy, move to an IBM Common User Access board.

What to watch for

Users cite the following issues when moving word processing to Windows:

Hardware: Lack of horsepower is forcing gradual moves.

Speed: Graphical word processors are generally slower than their DOS cousins.

Compatibility: Many companies are running a hybrid environment, so file compatibility is vital.

Training: A graphical environment means breaking a lot of old habits for new graphical tricks.

Key difference

Deinberg pointed out that the F1 key has different meanings in DOS and Windows. "I guess the biggest problem when people move is the switching of F3 and F1. Now, F1 is absolutely Help, not Cancel," she said. Deinberg said that her company was planning a series of one-hour training sessions designed to make users more comfortable moving around in Windows-based word processors.

Along with hard-to-change muscle habits come hard-to-change users. Gilgen said that he is expecting to encounter resistance from old dogs disinclined to learn new tricks but is taking a messiah approach to the challenge. "We'll get a few early adopters to start showing people how it works and the benefits of it," he said.

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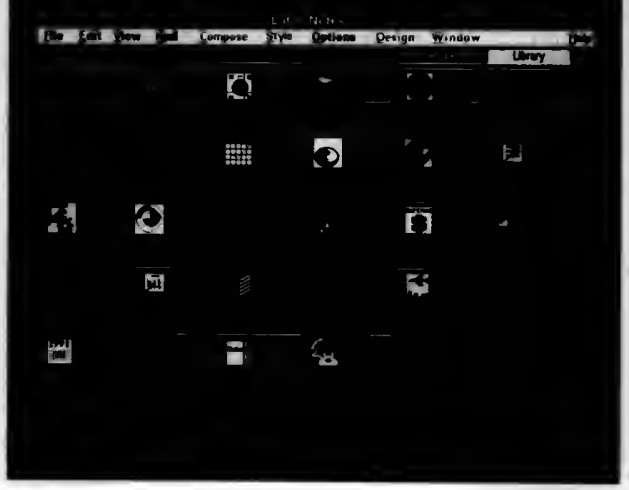

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Health services firm takes first step toward imaging system reform

BY ELLIS BOOKER
CW STAFF

GARLAND, Texas — Step one: Change the process. Step two: Change the system.

Intent on making its transition to electronic document imaging as uneventful as possible, Outreach Health Services first revamped its paper-based procedures and computer applications.

Outreach, which provides in-home nursing care in north and central Texas, did this well in advance of selecting its personal computer and local-area network-based imaging system.

"We built an application, including paper forms, that can work with virtually any imaging platform," project manager Lee Church said.

This approach to imaging would be applauded by many analysts, systems integrators and an increasing number of imaging vendors. All have begun to stress that the true benefits of imaging are only obtained when core business procedures — the majority of which continue to rely on the handling of paper documents — are re-engineered.

Indeed, when examined closely, Outreach's imaging solution is only the front end of a larger system designed to streamline, speed up and improve the quality of the nursing care it gives to patients and its back-office activities, such as the detailed claim forms it must file for Medicare reimbursement.

This larger redesign was necessary, Church explained, because of the pressures on health care providers today.

"There's an exploding demand for home health care but a very short supply of skilled registered nurses," he said. Two additional pressures, Church said, are new federal requirements for claims paperwork and "the overall demand to lower the cost of delivering services."

"Basically, we took the nursing processing and broke it down into discrete observations," Church explained. Each observation in turn was given a set of data points.

The result was a paper form for the 600 to 800 full-time-equivalent nurses employed by Outreach. The new forms for the field nurses are composed largely of fill-in-the-blank boxes.

Incoming forms will be fed into an awaiting, homegrown transaction system. Like the imaging system, this component — which is built in assembly, C and the FoxPro database system from Fox Software, Inc. — will be PC-based. A hardware vendor is expected to be chosen within weeks, according to Church.

One immediate benefit from this approach will be a companion application that will take the incoming data and reformat it for a Medicare claim.

"We taught the computer to regurgitate [the data] in standard medical language," Church said, adding that this will mean a faster turnaround of those claims.

A second, future component of the system, described as a long-term repository for computerized patient records, will use a Unix server under a relational database engine.

> "WE BUILT AN application that can work with virtually any imaging platform."
>
> LEE CHURCH
> OUTREACH HEALTH SERVICES

"We expect to reduce the paperwork burden on our nurses from 2½ hours a day to around 15 minutes a day," Church said, adding that this time savings amounts to a cost savings of $9 to $10 per home visit.

A side benefit of an image-based application, according to Church, will be intrinsic to the write-once read-many (WORM) optical disc drives that will store the substance of Outreach's nursing reports.

"Because we provide medical services," Church explained, "we need a good, clear-cut and unassailable audit trail." A WORM drive will provide exactly that, he said.

Outreach plans to deploy its homegrown system, already being beta-tested in its Amarillo, Texas, office, to another 21 sites over the next 10 months, according to Church.

Outreach also plans to equip a small portion of this staff with pen-based portable computers and digital cameras. Those cameras will help add a digitized picture of the patient or a patient's injury to the permanent electronic record.

Eventually, Church said, Outreach hopes to offer its image processing technology to other nursing companies through third parties.

Hospital's Mac system gives voice to bedridden children

BY JAMES DALY
CW STAFF

TORONTO — If there is anything worse than being bedridden in a hospital, it is being bedridden in a hospital and not being able to tell your doctor what hurts.

But that is the dilemma facing dozens of patients annually in the Pediatric Intensive Care Unit (PICU) of The Hospital for Sick Children, a 480-bed downtown facility that caters to ailing members of the younger set. In extreme cases, children cannot talk because they have tubes placed down their throats to facilitate breathing.

A handful of sharp doctors, however, have used the power of the Apple Computer, Inc. Macintosh and the MacInTalk voice synthesis system to get around that problem.

The result is an entertaining solution to the frustration of being unable to talk: My Voice, an application that allows the Macintosh to speak for the patient.

Practical and fun

The hospital staff first considered using flash cards to help young patients communicate, but physicians wanted something more appealing. Dr. Geoff Barker, director of critical care, suggested the use of the computer — an idea that was roundly applauded.

"I think the fact that the system talks to them not only helps them communicate but eases the pain a bit," said Dr. Gordon Tait, who helped develop the system.

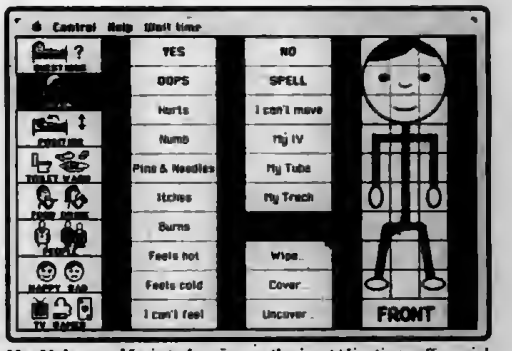
The computer-generated voice synthesis application goes a long way toward easing the fears of computerphobes. It also eliminates the need for the person receiving the message to awkwardly stretch over the patient and view the computer screen.

With My Voice, the Macintosh is suspended over the patient from a special mounting stand placed at the foot of the bed. This allows the computer to be conveniently positioned and does not interfere with access to the patient from the side of the bed, Tait said.

Because children as young as 7 years old would be using the system, it had to be simple to operate. One advantage of My Voice is that it can be controlled with a minimal amount of physical effort on the patient's part. With only one finger, patients can manipulate a trackball and select messages via an on-screen pointer.

For patients who have difficulty clicking the trackball button — such as those with heavily bandaged hands — My Voice can be operated in a timed mode in which a message is selected by positioning the pointer over a message for a specified time interval of between one and six seconds.

Quadriplegics can operate My Voice by using a setup that allows them to control the position of the pointer with head movements. "We wanted My Voice to be available for everyone," Tait said.



My Voice, a Macintosh voice synthesis application, offers sick kids the chance to communicate in an entertaining way

My Voice provides eight screens of 30 messages each. The topics for each screen include categories such as Questions, Pain, Position, Toilet & Wash, Food & Drink, People, Happy & Sad and TV & Games.

Several screens also include a stick figure so that the patient can refer to parts of the body. Tait said that sentences can be composed by selecting a verb and following it with a body part (Please scratch . . . my foot) or selecting a body part and following it with an adjective (My hand . . . is itchy).

Imaginative minds

My Voice also allows patients to compose their own messages, using an alphabet screen that serves as a crude word processor to spell out and store up to eight different messages.

"Even with 600 or 700 message combinations available, we still can't think of everything an 8-year-old might want to say," Tait said.

The Hospital for Sick Children is sold on the Macintosh in other areas of the department as well, according to Tait.

Dr. John Edmonds, one of the four staff physicians in the PICU, developed a Macintosh-based system to provide physicians in training with quick exposure to the problems that postoperative cardiac patients encounter.

Answer to an OLE problem

WINDOWS POINTERS

Part of a series of Windows 3.1 user tips provided by Microsoft Corp. and based on questions commonly asked of Microsoft customer support personnel.

Q Since upgrading from Windows 3.0 to Version 3.1, I can no longer use the Object Linking and Embedding (OLE) features in Excel or Word for Windows. Why?

A If you upgrade from Windows 3.0 to Windows 3.1 and you had installed in Windows 3.0 an application that supports OLE, Windows 3.1 may not recognize the OLE database. You need to update the database, which is a file named REG.DAT. To update the REG.DAT file, do the following:

1) From the File menu in Program Manager, choose the Run command.

2) In the Command Line box, type "ragedit." The Registration Information Editor appears.

3) From the File menu, choose the Merge Registration File.

4) Select the registration file that corresponds to the OLE application you are using. For example, if you are using Microsoft Publisher, choose MSPUB.REG.

5) Choose the OK button.

WINDOWS VIEW

Jesse Berst

License to save

What if you could buy less Windows software and still do a better job of serving end users?

The secret lies in a technology called "licensing servers." These programs sit on a network server and monitor how many copies of an application are in use. If you exceed your agreement, the licensing server can optionally restrict access. In other words, it can refuse access to the 51st user if you only have a license for 50.

With all the noise in the world of Windows, it was easy to overlook the early summer announcement by Microsoft and others of a licensing server API for Windows (LSAPI). Even though LSAPI hasn't gotten a lot of attention, I think it holds the key to saving corporations millions of dollars by slashing the time they spend on license administration while helping them make better buying decisions.

Stand to benefit

When the first versions of the LSAPI arrive at the end of the year, corporate and commercial developers will have a standard set of calls for hooking into licensing servers. This standardization is likely to stimulate the sales and use of licensing servers — and I think users will be the big beneficiaries.

For instance, one of the nation's largest drug companies recently installed licensing servers for its research lab using beta-test copies of Funk Software's AppMeter. The drug firm's concern over compliance had led it to buy a license for every person who might use a package. Although it stood to save big bucks by switching to concurrent licensing, management wouldn't agree to the changeover until a plan was in place to enforce the licenses.

So the firm installed AppMeter. At first, the company executive did not enforce the licenses but simply let AppMeter run for six weeks. At that point, they had a reading of the true level of demand for each application. From there, they were able to purchase the appropriate number of licenses and switch to enforcement mode.

License enforcement and administration is a burdensome headache that can be greatly streamlined with one of these products. Yet that may be the least important benefit. Licensing servers monitor use and send the information to a log file, which can be the key to smarter purchase decisions.

Suppose you discover you are only using 50% of the licenses at the "high-water mark." You might be able to save money by shifting some of the licenses to a different server.

In a similar fashion, the log report might show a low usage percentage except for the last three days of the month, when you exceed your allowed maximum. Rather than buy extra licenses for those three days, you might solve the problem by shifting employee deadlines.

Or consider this scenario, which is common in a Windows environment: Some of your users load a handful of Windows programs at the beginning of the day and then leave them idle as icons at the bottom of the desktop, just in case they need them. A report from the licensing server can reveal which individuals are hogging copies they aren't using.

More for less

In other words, the information available from a licensing server may persuade you to buy less software rather than more. Even when you discover a valid need for additional licenses, you will have detailed reports to take to management.

You don't need the Windows LSAPI to implement a licensing server. However, some of the current approaches have problems detecting what applications are out there, when they are launched and when they shut down again. LSAPI addresses these basic needs. First, it provides a standard way to embed the name of the application, the publisher, the version number and so on. Second, it provides a standard mechanism for "announcing" when an application is starting or stopping.

There's been lots of talk lately about electronic software distribution. Although it's important to find fast, convenient ways to buy and distribute software, it's equally important to decide whether to buy it in the first place. And that's one of the most compelling advantages of licensing servers.

The Windows environment will not be the only one with licensing servers, but the LSAPI standardization effort means it will likely be widely adopted on Windows and more reliable than before. Of all the dozens of Windows announcements made in 1992, the one that saves corporations the most money in the long run may be the one that encouraged universal support for licensing servers.

Berst is the publisher of Redmond, Wash.-based "Windows Watcher" newsletter, a monthly briefing service for software executives and corporate technology managers.

Computer vendors volunteer services to help Rebuild LA

After the riots, nonprofit organization forms to catalog offers of help

BY JEAN S. BOZMAN
CW STAFF

LOS ANGELES — Using hardware, software and services donated by industry vendors, a fledgling nonprofit organization called Rebuild LA is using a desktop database to catalog thousands of offers to help reconstruct the riot-torn portions of this city.

A pilot system was built on a Borland International, Inc. Paradox database at Arthur Andersen & Co.'s Los Angeles offices in May. The database and the 50-plus personal computers donated by IBM and other vendors that access it were installed in June at Rebuild LA's downtown headquarters, from which the group is spearheading the volunteer reconstruction efforts.

Currently, there are approximately 8,000 cataloged offers of assistance in the database, said Brian Kadison, who headed the Andersen team.

Offers of assistance range from a $50 million grant from Southern California Edison Co. to smaller offers of employment, food and construction services.

"This is a community-driven effort," Kadison said. "It's a way to use private-sector resources more effectively and to cut through government bureaucracy" to get things done.

Bill Brown, an IBM executive who formerly managed the firm's service operations in San Diego, has been assigned full-time to help the Rebuild LA effort. He is finding job-training centers for displaced workers and loans for burnt-out businesses.

Other computer firms that gave assistance to the project include Microsoft Corp., Lotus Development Corp., AST Research, Inc., Epson America, Inc., Northern Telecom, Inc., Novell, Inc. and Xerox Corp.

Kadison said volunteers helped with data entry. In time, Rebuild LA should have 70 staff members, he said, and in June it had about half that number. Rebuild LA's director is Peter Ueberroth, a Southern California businessman.

> "THIS IS A community-driven effort. It's a way to use private-sector resources more effectively and to cut through government bureaucracy" to get things done.
>
> BRIAN KADISON
> ARTHUR ANDERSEN

NEW PRODUCTS

Software application packages

RG Software Systems, Inc. has started shipping Vi-Spy Professional Edition Version 9.0.

Vi-Spy Professional Edition has a windowing and menu interface, dynamic menuing system and Polymorphic Viruses detection/prevention. It has an on-line document reader and a Help file that is accessible from the DOS menu or windows interface.

Vi-Spy Professional Edition Version 9.0 costs $149.95.

RG Software Systems
Suite 630
6900 E. Camelback Road
Scottsdale, Ariz. 85251
(602) 423-8000

Syscorp International, Inc. has introduced MicroStep V1.6 and MicroStep QS.

The products are full-function software development environments that allow users to make complete stand-alone or multiuser client/server applications without having to manually create code. An active data dictionary manages the consistency of objects both across and within applications, and users can jump between processing modules with a hot-jump feature.

A computer-aided software engineering function specifies and maintains complex logic expressions.

MicroStep QS costs $895; MicroStep V1.6 costs $1,895.

Syscorp International
Suite 300
Echelon IV
9430 Research Blvd.
Austin, Texas 78759
(512) 338-5800

Faxes

Eclipse Systems, Inc. has released Eclipse Fax for the Microsoft Corp. Windows environment.

The product adds file management features, desktop publishing capabilities, scanner support, simplified operation and increased speed to fax software.

Without using a desktop publishing program, users can create businesslike documents with personal signatures, company logos, graphics and Windows fonts.

Eclipse Fax offers such features as fax modification, what-you-see-is-what-you-get thumbnail view editing, tool bars and dialog boxes.

Eclipse Fax costs $119.

Eclipse Systems
Suite 1121
33 W. Monroe St.
Chicago, Ill. 60603
(312) 541-0260

Peripherals

Morse Technology, Inc. has released Morse KP8050.

The product is an Extended Industry Standard Architecture integrated drive electronics (IDE) caching controller. The KP8050 features defect mapping, bus mastering, disk mirroring and duplexing. Microsoft Corp.'s Windows, Novell, Inc.'s NetWare and The Santa Cruz Operation and Interactive Unix drives are included. Up to 8G bytes of data on four IDE drives and up to 16G bytes per system with two controllers can be supported.

The KP8050 costs $719 or $380 when purchased in volume.

Morse Technology
Unit 1, 17531 Railroad St.
City of Industry, Calif. 91748
(818) 854-8681

Macintosh products

Asante Technologies, Inc. has started shipping Person To Person, a network communications application that lets Apple Computer, Inc. Macintosh users exchange voice messages and text files without servers.

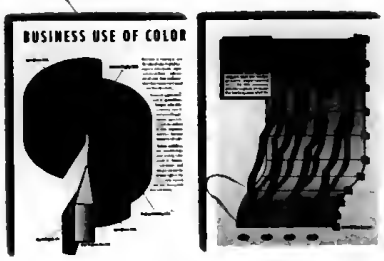
Users can attach reminders to other users' calendars with a message attachment feature and can send files by dragging them into a desktop outbox. Person To Person has an electric Post-it Note Window that can leave messages directly on the computer screen.

A two-user twin pack costs $149, a 10-user pack $399, and a zone user pack is $699.

Asante Technologies
404 Tasman Drive
Sunnyvale, Calif. 94089
(408) 752-8388

HP's PaintJet XL300. Now, brilliance doesn't require genius to install.

At last. A 300 dpi color printer that's as easy to add to your system as a LaserJet.



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Vivid color has never been so simple. The new PaintJet XL300 inkjet printer gives you laser-quality color graphics, text, and the compatibility of HP LaserJet printers. All for the remarkably low price of just $3,495.*

The PaintJet XL300 has LaserJet compatibility built right in. The same typefaces. The same page formatting. It also has PC/Macintosh auto-switching, so users in a mixed environment can share. And, just like a LaserJet, the PaintJet XL300 becomes network-ready with optional HP JetDirect interface cards.

Get laser-quality printing on a choice of media that includes plain paper and transparencies. Or add Adobe® PostScript® for access to even more graphics applications.

See how easily the PaintJet XL300 can bring color to your system. Call **1-800-752-0900, Ext. 3158** for a free print sample and the name of the authorized HP dealer nearest you.†

HEWLETT PACKARD

CA-Textor 6.0: Powerful but unpolished

Technology Analysis — A roundup of expert opinions about new products. Summaries written by product research coordinator Derek Slater.

Computer Associates International, Inc.'s CA-Textor jumps to the Microsoft Corp. Windows platform with Version 6.0. Reviewers said CA-Textor is an unusual mid-range word processor that needs further refining but offers some powerful features.

Performance: CA-Textor's speed is comparable with that of high-end Windows word processors, according to *PC Magazine*. However, the program requires only 3.5M bytes of disk space when fully installed.

Ease of use: Handling graphics and working with the Styles features can be awkward, reviewers said.

Editing: High-end features that are missing include frames, a macro language and support for endnotes and footnotes. CA-Textor does provide cut-and-paste capabilities along with a library feature that lets users store related documents in folders.

Output: *PC Week* reported some problems with fonts when running CA-Textor 6.0 on a system with a large number of installed Adobe Systems, Inc. Type Manager fonts.

Overall value: Version 6.0 costs $225. Reviewers said it is a promising package with many strengths.

Computer Associates' CA-Textor 6.0

Reviewers	Performance	Ease of use	Editing	Output	Documentation	Value
Infoworld 5/25/92	Slow to reformat	Effortless import and export	The basics; superior mail-merge	Print preview with zoom	NC	Competent
PC Week 4/27/92	NC	Difficult working with graphics	Some innovative features	Some font problems	NC	Good for text-intensive documents
PC Magazine 6/16/92	Resembles powerhouse programs	Clumsy but powerful table editor	Three editing modes	NC	NC	Worth getting to know
Windows Magazine 4/92	Very fast	Easiest tool bar	Only a few conversion formats	NC	Excellent on-line manual	Very good
PC Computing 8/91	NC	User-definable dictionaries	Feature-packed table editor	NC	NC	Ideal for international business
PC User 4/8/92	Features speed editing	Crude interface	Full-featured	NC	NC	High quality
Newsbytes 5/22/92	Easy to outrun	NC	No macros	NC	Very good	Low price
Users						
Mark Hansen, Bostek	Very good	Very good	Very good	Good	Good	Impressive for low end
Mark Miller, PC Solutions	Very good	Very good	Very good	Very good	Fair	Excellent value

Key: Very good, Good, Fair, Poor. Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. NC: No comment.

Vendor background information

CA reported revenue of $470 million for the quarter ended in March 1992, up from $360 million for the comparable quarter in 1991. Profit for the quarter was $58 million, up from $39 million last year.

CA responds

Marc Sokol, product strategy director:

Ease of use: We tried to keep the interface as simple as possible. For introductory users, it's wonderful, but more advanced users may find it awkward. We may add an expert mode in the future.

Output: We're addressing the fonts issue.

Value: We're offering an introductory price of $99 for Textor through August.

JustWrite 2.0: Stronger, lower cost

Symantec's JustWrite 2.0

Reviewers	Performance	Ease of use	Editing	Output	Documentation	Value
PC Computing 6/92	NC	Friendly	Surprising depth	Easily prints merged documents	NC	Fine alternative to high end
PC Week 4/27/92	NC	Improved formatting control	File format support problems	NC	NC	Better for complex formatting
Windows Magazine 4/92	Fast	Easy	Formatting is simple	NC	NC	NC
PC User 4/8/92	NC	Impressive looking	Quite powerful	NC	NC	Should consider cutting price
Newsbytes 4/17/92	NC	New quick paste feature	Integrated table editor	NC	NC	Enhanced data sharing capabilities
Users						
Robert Sturgeo, RMS Computers	Fair	Fair	Good	Fair	Good	Slow
Greg Hackett, Mitsubishi Electronics of America, Inc.	Good	Very good	Very good	Very good	Very good	Best template feature
Julia McCabe, Independent user	NC	Good	Good	Very good	NC	Sometimes complicated
Analysts						
Dean Noble, The Noble Group	Poor	Poor	Poor	Good	Poor	Does not meet expectations

Key: Very good, Good, Fair, Poor. Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. NC: No comment.

Vendor background information

Symantec reported profits of $7.7 million on revenue of $62 million for the quarter ended in March 1992. Profits for the same quarter in 1991 were $5.7 million on revenue of $41.5 million. Analyst Peter Rogers at Robertson, Stephens & Co. rated the firm's short-term performance and long-term stability as very good.

Symantec responds

Patrick Vermont, product manager:

Performance: What we may add in the long-term [strategy] is a dialog box-based macro recorder, as opposed to having users write macro code.

Editing: We've updated our filter for Word for Windows 2.0 documents, and we will have the new filter available on CompuServe and on our bulletin board.

Symantec Corp.'s JustWrite 2.0 provides a range of powerful features at about half the price of high-end competitors. The upgraded Windows word processor now offers improved control over document formatting and a more easily customized tool bar.

Performance: JustWrite has no macro language, but users may still be able to save time by using the document libraries and style templates, reviewers said.

Ease of use: The tool bar, which allows users to perform common functions with a single mouse click, now handles up to four rows of icons.

Editing: Standard features include a spell checker, thesaurus, grammar checker and endnote and footnote capabilities. A new floating frame feature enables users to juggle the placement of sections of text, graphics or Windows Object Linking and Embedding objects. *PC Week* noted some glitches in the product's support for other word processing file formats, including moderately complex Microsoft Word for Windows files.

Output: The new version offers improved mail-merge capabilities, reviewers said.

Overall value: At $249, JustWrite is an enticing value, according to reviewers. Its frames features make JustWrite suitable for handling complicated formatting requirements.

3.1 is less than 2.0.

You don't have to be a whiz at math to figure this one out. When it comes to running Windows™ applications, OS/2 2.0* gives you more than DOS 5.0 plus Windows 3.1. But that's only part of the equation.

OS/2 2.0 can get more out of DOS applications than Windows. Windows can't run OS/2 applications at all. And when it comes to running multiple applications, OS/2 2.0 is so much better, you can throw comparisons out the window.

You see, OS/2 2.0 isn't just a DOS extension. It's a true operating system. Windows isn't. That's why OS/2 2.0 can run multiple DOS, Windows and OS/2 applications at the same time, in separate windows on the same screen. And OS/2 Crash Protection™ can help shield running applications from each other, providing protection should one fail.

Of course, you could still go and spend $149.95 for a special DOS and Windows package. But when you consider that for as low as $49 you could get the capabilities of DOS and Windows, plus all the added benefits of OS/2—including Adobe Type Manager™—it just doesn't add up.

For an IBM authorized dealer near you, or to order OS/2 2.0 from IBM—at special introductory prices of $49 for Windows users and $99 from any DOS through July 31*—call 1 800 3-IBM-OS2.**

	OS/2 Win-OS/2 Full Screen	DOS 5.0 & Win 3.1 Full Screen
WordPerfect® (spellcheck)†	38.5 sec	43.6 sec
AmiPro™ 2.0 (print)††	95.1 sec	104.6 sec
Preemptive multi-tasking of Win apps	YES	NO
Crash protection	YES	NO

IBM®

*Upgrade from Windows $49, upgrade from any DOS $99, $139 base operating system. These prices valid only when ordered directly through IBM. Proof of purchase required. Dealer prices may vary. Offer valid in U.S.A. only, expires 7/31/92. Shipping and handling not included. **In Canada, call 1 800 465 7999. †Tests conducted by NSTL. System under test is a PS/2 57SX w/4MB RAM and an 8513 VGA display. Under Windows 3.1, applications were loaded and/or executed from the Windows 3.1 Program Manager. Under OS/2, applications were also loaded and/or executed from the Win-OS/2 Full Screen Program Manager. Both Windows 3.1 and Win-OS/2 use a disk cache of 64KB. †Word processor spellcheck. The time required to spellcheck a document with no spelling errors. Open the Word Perfect for Windows 5.1 document entitled "macro.doc". Select TOOLS from the menu bar, then select SPELLER. Select OPTIONS from the SPELLER menu bar, and deselect all of the options. Click OK. Test was timed from the click until the user regained control of the application. "Macro.doc" contains 21 pages and is 47,455 bytes. ††Word Processor Print. The time it took to print a word processing document. Open the AmiPro 2.0 document entitled "printest.sam". Select FILE from the menu bar, then select PRINT. Select FROM page 1 to 1 and click OK. The test was timed from the click until the first page completed printing on the printer. Windows 3.1 used the IBM LaserPrinter 4029 PS17 PostScript printer driver shipped with the Windows 3.1 software package, and Win-OS/2 used the IBM 4029 v21 (17 [illegible]) PostScript printer driver shipped with the OS/2 2.0 Operating System using LPT1.OS2. NSTL makes no warranties, express or implied, as to results to be obtained by any person or entity from use of the services or the results thereof, or any information or data included therein. NSTL makes no express or implied warranties of merchantability or fitness for a particular purpose or use with respect to the services and/or results thereof, or any information or data included therein. IBM and OS/2 are registered trademarks and OS/2 Crash Protection is a trademark of International Business Machines Corporation. All other products are trademarks or registered trademarks of their respective companies. © 1992 IBM Corp.

NEW PRODUCT IN-SITE

Low-cost RISC with a PC look

IBM's RS/6000 Model 220 offers many price/performance pluses but it has an identity crisis

- An amalgamation of personal computer and workstation technologies, the IBM RISC System/6000 Model 220 is having a difficult time finding a niche in many companies.
- With a fully configured price tag of less than $10,000, the Model 220 is competitively priced with other workstations having lower price/performance ratios.
- While users are finding that most RS/6000 applications port easily to the Model 220 running AIX 3.2.1, they are experiencing minor problems with its outdated implementation of X Window.
- IBM seems to be having difficulty generating awareness of the Model 220 among its customers. In a survey of more than 50 shops using other versions of the RS/6000, only a handful owned or knew about the Model 220.

Is there a market for low-end workstations with strong price/performance and PC attributes? IBM aims to find out with its latest RS/6000 workstation, the Model 220.

Users are apparently not snapping up the system because of its nontraditional mixture of attributes. But those who have evaluated it find it compares favorably with competitive systems, particularly Sun Microsystems, Inc.'a SPARCstation lines.

Four users from *Computerworld*'s Product Evaluation Council (see company list below) teamed up with analysts David Brown at Technology Investment Strategies Corp. and Phil Magne at ARS/Workstation Laboratories to evaluate the Model 220.

NETWORKING

The evaluators found that the Model 220 was simply a matter of "plug and play," integrating easily into their varied network environments.

Educational institution: "The 220s just sit on our Ethernet, which is connected to a couple of backbones with thousands of nodes. It just connected right up."

Utility: "We use one of the 220s as an SNA gateway on Ethernet, and it was plug and play."

Support for networking through AIX, the Model 220's operating system, is very good, with a wide variety of protocols supported, according to Magne.

The only drawback, according to the utility company evaluator, is a limited number of slots. The 220 comes with only two, which is fine for end-user implementation, but as a gateway there is a limited number of networks that can be supported.

PERFORMANCE

Benchmark tests from Workstation Labs and the users show that the 220 performs as fast as or faster than Sun SPARCstations and Digital Equipment Corp. DECstations but not as fast as the latest Hewlett-Packard Co. HP 9000 models.

The educational institution, running a wide variety of engineering, research and academic applications, found the 220 "much faster" than the Sun SPARCstation 2, IPX and IPC lines.

"The most dramatic comparison was with the Sun's floating point performance. The 220 was much higher based on the SPECmarks," the evaluator said.

His results did not include a comparison against the newest SPARCstations released after the SPARC 2.

The utility found the times to process data communications applications nearly identical to the SPARC 2, while the manufacturer found the 220 "far superior" to a DEC VAXstation running Adra Systems, Inc.'s Cadra drawing package.

Magne reported that the 220's disk performance is enhanced by AIX'a file-mapping capability, which gives it an edge over competitors.

The education institution evaluator was less impressed with disk speed than processor speed. One of his systems uses a 400M-byte internal disk and an 1G-byte external disk. However, disk access speed was slowed by the use of standard SCSI disks.

"The total disk space is more limited. But we can hang a gigabyte of disk off of each system, and that's plenty for the next year or two," he said.

The utility ported applications from an HP 9000 Model 700 to the RS/6000 to evaluate video and graphics performance. The 220 provided 500K operations per second compared to 1,500K for the HP machine, which meets the evaluators' expectations.

The users also tested network speed by running file transfer between systems and comparing the results to the other workstations installed on the network. The results were about the same for the 220 as other IBM and Sun workstations.

OPERATING SYSTEM

Users familiar with AIX found it easy to use on the Model 220, although they encountered problems when using different versions of AIX and other software.

For example, the education evaluator found that his XServer software would

COMPANY PROFILE 1

RATINGS	
Networking	4
Performance	3
Operating system	3
Support	4
Ease of use	4
Software availability	4
Value	4
Overall	3.7

INDUSTRY: UTILITY

- Number of RS/6000 Model 220s: 3
- Memory capacity per system: 320M bytes
- Other RS/6000s: Yes
- System compared to: Sun SPARC II
- Other workstations: 1,000 plus PCs, etc.
- Networked: Yes
- Network type: TCP/IP
- Applications: Development of real-time X.25 TCP/IP communications system using C and IBM's Softbench.

COMPANY PROFILE 2

RATINGS	
Networking	NC
Performance	5
Operating system	4
Support	2
Ease of use	3
Software availability	5
Value	NC
Overall	3.8

INDUSTRY: MANUFACTURING

- Number of RS/6000 Model 220s: 1
- Memory capacity per system: NC
- Other RS/6000s: No
- System compared to: DEC VAXstation
- Other workstations: NC
- Networked: No
- Network type: None
- Applications: Adra System'a Cadra engineering drawing and graphics program.

COMPUTERWORLD PRODUCT EVALUATION COUNCIL

AT&T • American President Cos. • Bell Atlantic Corp. • Bergen Brunswig Corp. • The Chase Manhattan Bank NA • Commonwealth Edison Co. • Consolidated Freightways, Inc. • Corestates Financial Corp. • Dresser Industries, Inc. • Federal Express Corp. • First National Bank of Chicago • FMC Corp. • Grumman Corp. • Kmart Corp. • Long Island Lighting Co. • Marshalls, Inc. • Massachusetts Mutual Life Insurance Co. • MCI Communications Corp. • Mellon Bank Corp. • Metropolitan Life Insurance Co. • Northeast Utilities • Preston Trucking Co. • Primerica Corp. • Public Service Electric & Gas Co. • Ryder System, Inc. • Sikorsky Aircraft • The Southern Co. • University of Virginia

crash at the drop of a hat. IBM eventually addressed the problem, which may be related to a graphics adapter, by sending the user a new version of AIX. The institution had been using Version 3.2 and will now use Version 3.2.1.

The utility evaluator found that AIX 3.2.1 does not provide direct support for MIT's latest graphics subsystem, X11R5. Using the previous version required additional work for the information systems department to adjust applications to meet users' needs.

Other users who were less familiar with AIX discovered it offered a wide variety of options and a good interface. But they also reported that there was a learning curve required to become acclimated.

Manufacturer: "There were more Help prompts available. I didn't like the fact that AIX was sensitive to upper and lowercase; that led to some problems: Overall, AIX was slightly better."

SUPPORT

The evaluators reported slower service and support responsiveness than they were accustomed to, or they found it difficult to reach the appropriate IBM expert, particularly for AIX issues.

"They've been a little slower than I would have liked in responding to the XServer crashing problem," the education evaluator said.

The manufacturer evaluator had problems with keyboard mapping, which would change after he specified the parameters. "Compared to what I get from DEC, the support was worse. It took IBM the longest time to solve the mapping problem." The problem was apparently related to an upcoming version of AIX and the application being used.

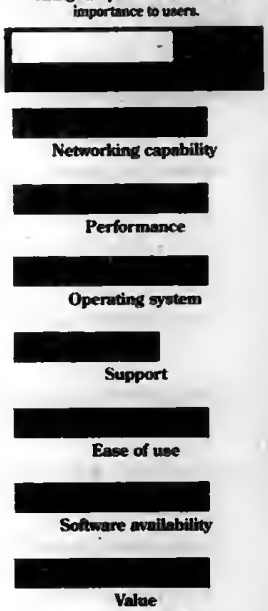
EASE OF USE

The evaluators reported better documentation for AIX 3.2, and they found the Model 220 easy to use after learning the operating system requirements.

Faster performance made it easier to use than other systems, according to the manufacturer.

IBM RS/6000 Model 220

Ratings are based on user expectations on a scale of 1 to 5, where 1 is below expectations and 5 is above expectations. Ratings are presented in order of importance to users.



SOFTWARE AVAILABILITY

Generally, the users were satisfied with the availability of software. They were able to find the engineering and development applications they needed or were able to port their own.

However, compared with the PC environment, there are fewer AIX applications for end users. This limitation is a key factor in determining how and where the RS/6000 Model 220 can be used. Despite its PC price, faster performance and architecture, the AIX platform limits its viability as a generic end-user system when compared with OS/2- and DOS-based PCs.

VALUE

The evaluators found the Model 220 a good value for their environments. They paid less than or about the same as the cost for comparable systems and achieved superior performance.

"We compared it to Sun systems and desktop PCs. Where you have users who need more power than you get with DOS on a PC, the 220 is a good solution. The price was about equal to Sun; our experience with AIX caused us to choose the 220," the utility user said.

Another aspect of the value is the ability to use standard PC peripherals, such as tape drives and disk drives.

"We've expanded several boxes using inexpensive PC peripherals. IBM components are outrageous in terms of price, and we were able to get drives advertised in PC trade publications for $3 per megabyte," the utility user said.

Compiled by Michael Sullivan-Trainor and Garry Ray, CW staff.

IBM RESPONDS

Here is IBM's response to the issues raised in this evaluation:

Positioning: The 220 is the entry model in the IBM RS/6000 line and offers a low-price, full-feature RISC workstation for customers who want an open systems solution. The Micro Channel Architecture (MCA) is used in all RS/6000 models; Small Computer Systems Interface (SCSI) connections are also supported by all models. An integrated SCSI controller is provided in the 220 as well as the desktop 340 and 350 and the rack-mounted 970.

IBM chose to use the MCA for the RS/6000 because of its excellent technology and growth capability and for the compatibility it provides in terms of being able to share adapters with MCA-based Personal System/2s.

We do not see any positioning issues for our customers even though the price points for PCs and workstations may overlap in some cases. The decision of whether to buy a PC or a workstation is determined by many factors. With the 220, we are meeting the needs of that class of customer who wants a powerful but lower priced RISC-based system.

Operating system: The 220 was not intended to run with levels of AIX/6000 before 3.2.1. There is XServer code in 3.2.1 that is for the 220.

IBM supports the X11 standard and intends to introduce X11R5 support as well as any future X11 releases on an aggressive schedule. We currently have X11R5 running on the RS/6000 as a technology demonstration.

Support: The only difference between support for the 220 and support for the rest of the RS/6000 family is that setup of the 220 has been simplified so customers can do it themselves. IBM provides the same high level of support for the 220 that our customers have come to expect.

Performance face-off

RS/6000 Model 220 with 16M bytes of main memory

	SPECmarks	Price	Price/performance
RS/6000 Model 220	20.5	$10,275*	$501/SPECmark
DECstation 5000/25	14.4	$17,060	$1,184/SPECmark
Sun SPARCstation IPX	18.4	$17,795	$967/SPECmark
HP 9000/710	48	$20,645	$430/SPECmark

Source: Workstation Laboratories *Price based on 16M bytes of memory including hardware and operating system costs

INDUSTRY: EDUCATION

RATINGS	
Networking	4
Performance	3
Operating system	4
Support	4
Ease of use	4
Software availability	4
Value	4
Overall	3.8

- **Number of RS/6000 Model 220s:** 12
- **Memory capacity per system:** 400M bytes
- **Other RS/6000s:** Yes
- **System compared to:** Sun SPARC II, IPX
- **Other workstations:** 500 multiuser
- **Networked:** Yes
- **Network type:** Ethernet
- **Applications:** General Unix/X Windows workstation load in an academic research and instructional environment.

INDUSTRY: TRANSPORTATION

RATINGS	
Networking	NC
Performance	3
Operating system	3
Support	3
Ease of use	3
Software availability	3
Value	3
Overall	3

- **Number of RS/6000 Model 220s:** 1
- **Memory capacity per system:** NC
- **Other RS/6000s:** Yes
- **System compared to:** Sun
- **Other workstations:** NC
- **Networked:** No
- **Network type:** None
- **Applications:** General transportation applications.

METHODOLOGY: Product ratings and written information are based on the evaluations of four user organizations and product analysts who have extensive knowledge of the product. Each user has a version of the product installed at its site running production work loads. The material was gathered through written surveys and teleconferencing. The users are members of the Computerworld Product Evaluation Council. Ratings are based on user expectations on a scale of 1 to 5, where 5 is above expectations and 1 is below expectations. Ratings are presented in order of importance to users.
NC: No comment

People have always b
together. Unfo
computing envir

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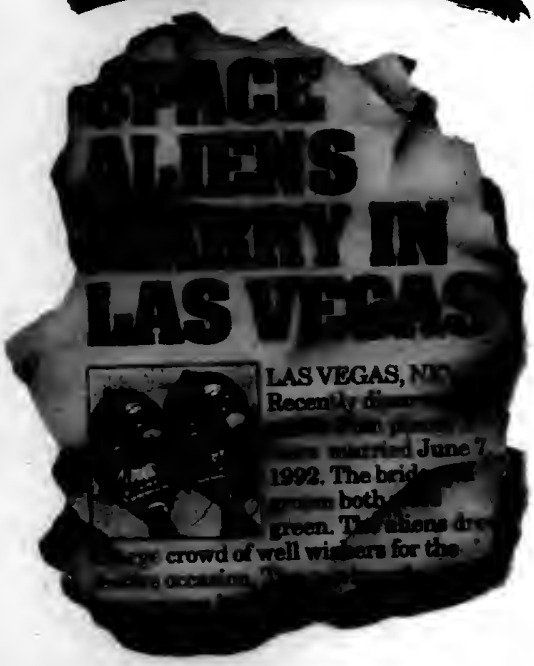

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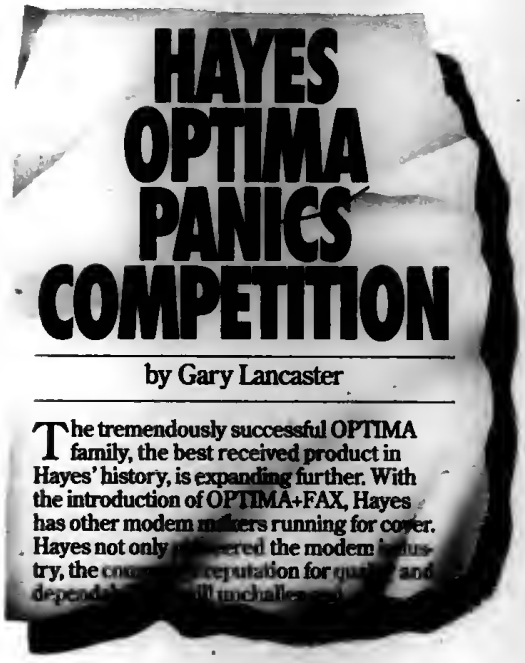

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New network cuts mainframe bills 90%

American Airlines development unit reaps savings with distributed $4.5 million Unix-based system

BY MARYFRAN JOHNSON
CW STAFF

DALLAS — The annual bill for mainframe computing services used to run up past the $5 million mark at American Airlines Decision Technologies, the software development and consulting subsidiary of AMR Corp.

This year, the tab will drop below $430,000 — a 90% decline in the space of three years.

The catalyst for this dramatic change is a downsizing project that led Decision Technologies to create an open systems network, built with $4.5 million worth of multivendor Unix-based hardware and software.

The rise and fall

Now entering the final segment of a project begun 18 months ago, information systems executives say the productivity of their 350 analysts has risen as dependency on corporate IBM mainframes in Tulsa, Okla., has declined.

"What we really get is fast turnaround for our analysts," said John DiNovo, manager of internal systems at Decision Technologies. For complex "what if" analyses, they can now run several jobs against data stored locally rather than remotely.

The company provides consulting services and develops decision support systems for American Airlines as well as for outside companies such as Lufthansa German Airlines, Ryder Truck Rental, Inc. and Royal Caribbean Cruise Lines.

"It turns out that the technologies we've developed for our business problems are readily exportable," DiNovo said. "In our case, we want to decide how many people to put in the planes. Ryder Truck may want to schedule their fleet, and a cruise line wants to figure out how many seats to sell."

The decision to develop its own network crystalized in 1989-90, just a year after AMR fashioned the subsidiary out of its former operations research department. Decision Technologies originally paid an annual charge back to AMR for use of both the corporate mainframes and the "InterAAct" network of IBM Personal System/2s.

"Once we decided to go after external business, it became apparent we would need a platform to support that effort," said Bruce Light, a senior consultant at Decision Technologies. "Not all companies have mainframes, and we wanted to be able to offer turnkey solutions."

Mandate: 1-year payback

A simple but rather demanding criterion governed the rollout of the client/server environment: expenditures for each phase had to be recovered through savings realized during the subsequent 12 months. Without demonstrable savings, there would be no purchases approved for the next phase, Light said.

"The bottom line was that we paid for the network investment within one year," Light said.

Already noted as improvements are faster performance of CPU-intensive applications, ease of use with X Window System-based user interfaces and greater flexibility in the Unix environment. While historical data collection is still the province of the mainframe, processing of the data is now under local control.

"It is so much more productive to run our jobs locally," Light said.

Decision Technologies' open systems network includes two data servers from Epoch Systems, Inc. and Auspex, Inc., several compute servers and 150 high-end engineering workstations and X terminals.

The majority of the workstations are from the former Mips Computer Systems, Inc. — now owned by Silicon Graphics, Inc. — but the mix also includes systems from IBM, Digital Equipment Corp., Hewlett-Packard Co. and Silicon Graphics. Another 150 PCs are used on the administrative side of the company, with connectivity provided by Transmission Control Protocol/Internet Protocol over an Ethernet backbone.

Storage intensive

The network had to accommodate not only the applications running locally but also the management and storage of up to 60G bytes of data once stored and managed by mainframes.

The first data models ported to the Unix systems were the capacity planning and crew allocations — both so large they spawned an immediate need for greater data management and storage capacity.

"I don't think we anticipated the magnitude of the data management problem," DiNovo said. "With traditional means for storage — magnetic disks — we would have had to fill rooms of it." That need led to the purchase of the data servers: the Epoch system for storage and access to historical data and the Auspex multiprocessor system for high-speed access to active files, DiNovo explained.

One drawback to this new environment is the relative paucity of system and network management tools — a complaint widely echoed by other companies downsizing from mainframes to Unix-based networks. "Every vendor doing something a little different causes us a headache," Light said. "We've even thought of writing stuff ourselves to go and do administrative things in this environment."

ON SITE

Bruce Light (left) and John DiNovo

American Airlines Decision Technologies
(subsidiary of AMR Corp.)
Dallas, Texas

- **Challenge:** Downsizing from mainframe computing to an open systems network.
- **Technology:** $4.5 million client/server network of 150 Unix-based workstations and X Window System terminals, several compute servers and two data servers for optical and magnetic storage.
- **Result:** Improved user productivity with local file access and processing, faster performance of CPU-intensive applications and significant reduction in fees for corporate mainframe use.

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Intel looks inward to future

Chip company's IS group begins to implement its vision — on itself

BY MICHAEL FITZGERALD
CW STAFF

SANTA CLARA, Calif. — Intel Corp.'s Corporate Information Services (CIS) group knows firsthand what it would feel like to be a lab rat that helped experiment on itself. The CIS group is the guinea pig for Intel's vision of the future, in charge of implementing the plan and enduring the experiment.

"They're playing leading implementor of some of the most advanced technology. It's very painful — most companies would not want to do this [as fast as we are]. You need an MIS department with courage and very thick skin," said Ron Whittier, vice president of Intel's Architecture and Software Technology Group, which drives architectural design at Intel. Whittier oversees the CIS department.

The initial phase of the plan is under way to achieve Intel's vision of the future: Computer-Supported Collaboration (CSC). This vision, not surprisingly, will involve a computing environment based entirely on Intel microprocessors. Intel has started with a move to create one, or possibly two, seamless internal electronic-mail systems by using Soft-Switch, Inc.'s Soft-Switch Central to integrate its seven to 12 systems.

Whittier said the year of effort to create this seamless network has been "painful" at times.

"We're struggling through it — this is not an easy transition for an IS department," he said.

Neal Franking, director of the CIS group at Intel, agreed that the challenges were big and that all parties want to be further along than they are. Integrating different groups has been particularly difficult.

"We historically have been very focused in optimizing individual things. We now have to get the pieces to play together, and moving up that optimization curve is hard," Franking said. "It's a big shift, or really two megashifts: One is the shift to more distributed technologies, the other is dealing with development methodologies that work within a cross-functional design."

However, "We think we're over the mental hump of changing the paradigm," he added.

Since the CIS group was brought under Whittier's command in May 1991, it has also influenced the way Intel builds its microprocessors.

While changes in specific chip design have not occurred, Whittier noted that Intel has, for instance, shifted an architectural focus from building security features into its chips to improving data movement.

"You start to understand that it's not security so much as moving rich data types around, so video acceleration might become more important than security," Whittier said. "In that sense, you get a sense of what should be important in the next generation of products coming out and start to feed into the architecture and software design of the product."

ON SITE

Ron Whittier

Intel Corp.
Santa Clara, Calif.

- **Challenge:** To build a foundation for future systems, such as data-rich messaging applications.
- **Strategy:** Replace IBM mainframes and DEC VAXs with Intel-based workstations and servers.
- **Goals:** Increased productivity, reduced travel expense and proof that an entire corporation can run on Intel chips.

Flight of fancy

The ultimate goal for Intel goes beyond just the improved personal productivity and lower costs that Franking cited.

"We want to put the airlines out of business, because the cost of business travel is killing us," Whittier said half-seriously about doing business just-in-time by flying everywhere. "If [people] had very capable data or videoconferencing capability, they wouldn't have to do that."

This would require as-yet uncreated power-eating, full-motion video multimedia applications that would ideally create more demand for Intel chips.

"We want people to burn more and more MIPS and buy lots and lots of [Intel] chips, so our fundamental business model is set up in getting consumers to consume MIPS," Whittier explained.

Still, Intel has a way to go before it can handle more processing power itself. Whittier estimated it would take two years of a "tough" transition to data-rich applications — for example, messaging-sensitive spreadsheets or word processors that allow more than one person to work on a document at a time.

Nonetheless, Intel can show results. Franking, who reports to Whittier, said Intel has moved out two of its four IBM 3090 600Js, replacing them with client/server networks. Intel's predominant network is Banyan Systems, Inc.'s Vines.

Intel is also working to replace its approximately 100 Digital Equipment Corp. VAXs with Intel-based workstations running Unix. Intel also has a group of IBM RISC System/6000s that it is trying to supplant with Intel-based machines. The company's current vendor of choice is NCR Corp.

Franking said he expects Intel will be a pioneer user of its own next-generation P5-based systems but will focus volume purchases on upgradable I486-based personal computers for some time to come. The 25,000-person firm has 22,000 PCs, 95% of them 80386 or better.

IN BRIEF

PCs check in at Hilton

■ **Hilton Reservation Service** recently launched the use of networked IBM personal computers as the key workstations in its U.S. reservation center. The Intel Corp. 80386-based desktop machines replace dumb IBM 3270-type terminals and will provide graphics capabilities for the Beverly Hills, Calif.-based hotel reservation system.

■ **The Banco Popolare di Bergamo**, one of the oldest and largest private banks in Italy, has signed a $1 million deal with Applix, Inc. to standardize 240 bank branches on Asterx Unix office software. Under the contract, Banco Popolare will replace its character-based office automation software with Asterx, running on the bank's Sun Microsystems, Inc. SPARCstations and linked to an Oracle Corp. relational database management system. The entire hardware and software installation is valued at more than $18 million, bank officials said. Asterx is a suite of applications and tools used to create compound documents containing text, spreadsheets and graphics.

COMMENTARY

Emma Zevik

Grasping groupware

Choosing a core product isn't the major hurdle when launching a groupware project. The challenge is actually organizing the group that will use it.

It is imperative to consider the benefits and the challenges groups face in approaching a groupware product. Clearly, the strongest need is for design and customization, which should be tailored to a group's needs.

Design and development can include customizing menus and commands in the user interface as well as tailoring conferences for specific purposes. Consider running at least two pilot applications with either one or a few business problems that can be solved by an on-line group. For groups approaching networking for the first time, design is a crucial consideration because design is what attracts and retains member participation.

For example, organizers of Artswire Net — a project of the New York Foundation for the Arts that links arts organizations to solve artists' business and artistic needs — spent several months developing custom menus prior to implementation. Language, ease of use and syntax of the menu interface were carefully considered by the group and MetaSystems Design Group, Inc. (MDG) in Arlington, Va., which carries Artswire Net on The MetaNetwork (TMN).

Iris, a TMN network connecting teachers and classrooms, has been up and running since 1989. For an ongoing workgroup that has been operating for a number of years, continuing development and assessment are equally important to improving and revitalizing the on-line group.

Planning is key

Launching a successful groupware effort requires careful planning for both systems and human resources. The selection of the team of people that will implement the groupware is crucial. Try to assemble a mix of disciplines so the team will be balanced. The implementation plan should define business objectives and balance the technology and the scope of the project for its members.

Running a group of six members on-line is different from facilitating a group of 150 people. Planning objectives need to include training for individual users as well as for the moderators of the workgroup. APHIS, the U.S. Department of Agriculture's Animal, Plant, Health Inspection Service network, began as a supplement to a senior officers' training course and has grown to run seven different applications on its network.

Yes, the technical IS considerations such as hardware and software are important, but beyond the technical aspects of the groupware product is the human factor. This is just as important as, if not more important than, the technical factor. No matter what the group — lawyers, artists, teachers, accountants, managers — the key to successful implementation of groupware is the participation of people.

Groupware works best with people who are team players. If participants are already comfortable working together, then the implementation of a groupware product is going to be more natural. Artswire spent two years developing the human component of its network before it began to work with MDG to design its on-line system. Too many groups neglect this important piece of the process.

Think of an architectural design firm that works with companies to design their physical spaces. The most successful implementations of groupware projects are those that work toward the design of their electronic spaces.

With all the recent hoopla about workgroup computing, unrealistic expectations are sure to help bring about failure. In this industry where "groupware" is still a nebulous term, clarity and definition are vital assets. Appropriate design and development combined with careful planning can help ensure active participation by members in any workgroup environment.

Zevik is a computer trainer in Lexington, Mass.

IN BRIEF

Novell adds fresh versions of NetWare for Macintosh

■ **Novell, Inc.** recently expanded its Apple Computer, Inc. Macintosh connectivity options with the announcement of 5-, 20- and 100-user versions of its NetWare for Macintosh Version 3.11.

The new editions include support for the Simple Network Management Protocol, print accounting, printer logs, printer keeper and hold queues and the option to cancel print job notification.

Suggested retail prices are $495 for five users, $895 for 20 users and $1,995 for 100 users. In March, Novell announced a 200-user version priced at $2,995.

■ **IBM** has unveiled software that integrates configuration management and defect tracking for software development on **Hewlett-Packard Co.** and **Sun Microsystems, Inc.** workstations as well as IBM RISC System/6000s.

The new products, which are available for HP and Sun client machines next month at $695 per seat, are based on IBM's AIX Configuration Management Version Control Client/6000 tools.

To use the software, users must install it on a workstation connected to an RS/6000 server. The software tools give customers access to configuration management, version control, integrated problem tracking and design change control features, according to the company.

■ **Digital Equipment Corp.** recently added two new systems to its DECstation/DECsystem line of Unix workstations and servers and reduced prices by as much as 40% for its Turbochannel graphics options and the prepackaged systems that use them.

The new hardware includes the Personal DECstation 5000 Model 33, a 25-SPECmark workstation running at a clock speed of 33 MHz that is priced at $6,995 for a diskless version.

Also introduced was the DECsystem 5000 Model 133 server, a new midrange member of the series that is priced from $7,925 for a diskless version.

■ **Sun Microsystems Computer Corp.**, the hardware subsidiary of Sun Microsystems, reported that it is gaining ground in the process control market, where the company expects to earn $100 million in annual revenue by 1995.

Sun recently announced a new Scalable Processor Architecture (SPARC)-based system from The Foxboro Co. The system reportedly produces integrated industrial process management and control systems.

With the addition of Foxboro, three of the top distributed control system vendors in the U.S., including Westinghouse Electric Corp., now use SPARC systems as their primary platforms.

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Anthony J. Alfano
Assistant Vice President

ARCUS

NEW PRODUCTS

Unix

Arnet Corp. has introduced ArnetFax, a fax package for Unix systems.

ArnetFax allows users to transmit to or receive from any Group 3 fax machine worldwide. Word processing or other applications using ASCII, Tag Image File Format or International Standards Organization character text files transmit output directly.

Up to eight fax channels can be accessed from a Unix-based personal computer via a multiline capability. ArnetFax costs $995 for a single-line board with Unix software or $1,295 for a dual-line board with Unix software. A single board without software costs $695; a dual-line board without software costs $995.

Arnet
618 Grassmere Park Drive, #6
Nashville, Tenn. 37211
(615) 834-8000

Workstations

Danford Corp. has introduced the EEB-4700 Extended Industry Standard Architecture (EISA) Expansion Box.

The product is an intelligent EISA bus expansion for Hewlett-Packard Co.'s 9000 Series 700 workstations. The EEB-4700 expands the single EISA slot in the HP Models 720 and 730 systems into seven full-featured EISA slots.

The EEB-4700 adds more EISA slots for interfacing I/O boards, enhancing the expansion ability of the Series 700 workstation, the company reported.

The EEB-4700 costs $3,750.

Danford
350 W. Fifth St.
San Pedro, Calif. 90731
(213) 514-9334

Bristol Technology, Inc. has announced Wind/U, software technology that enables Microsoft Corp. Windows applications to run as native Unix/Motif applications.

Windows applications can be executed on the native Unix environment when the existing Windows application is recompiled in the Unix environment and linked to the Wind/U Library.

The Wind/U tool kit provides the Windows applications ported to Unix with the same functionality between Windows and Unix versions. It is priced at $50,000.

Bristol Technology
898 Ethan Allen Highway
Ridgefield, Conn. 06877
(203) 438-6969

Electronic mail

InterCon Systems Corp. has announced Dispatcher/X.400 for MacX.400, an electronic-mail software gateway that allows Apple Computer, Inc. Macintosh users to exchange E-mail with workstations on X.400 systems.

The product is for high-performance local- and wide-area network connections and is for users with large internetwork systems with high-volume E-mail traffic. With Apple Server, Macintosh users can exchange electronic messages between their QuickMail E-mail system and any X.400 compatible system.

The product costs $1,995.

InterCon Systems
950 Herndon Pkwy.
Herndon, Va. 22070
(703) 709-9890

Micro-to-micro

Andataco has started shipping Liken 1.2, an Apple Computer, Inc. Macintosh environment emulator.

Liken 1.2 improves the sharing between Sun Microsystems, Inc. and Macintosh environments with cut-and-paste functionality and more user-customizable setup features. Applications that operate on a Macintosh Classic can run without modification in an X Window System and on Sun and compatible Scalable Processor Architecture workstations.

Single-user licenses cost $695.

Andataco
9550 Waples St.
San Diego, Calif. 92121
(619) 453-9191

Sitka Corp., a subsidiary of Sun Microsystems, Inc., has announced NetPrint Sun.

The product ($495) is a set of network printing services that provide Sun workstations, Apple Computer, Inc. Macintosh computers and IBM and compatible personal computer users with a way to share printing resources.

NetPrint Sun gives Macintosh and PC users on any Ethernet or LocalTalk network access to the Sun printing services and gives Sun workstations the ability to print on any Macintosh or PC PostScript printer on the network.

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No end in sight for 'religious wars'

Recent arrival of new network management standards further complicates user, vendor choices

BY ELISABETH HORWITT
CW STAFF

"What we users are concerned about is not CMIP or SNMP or SMP — but applications such as performance, bandwidth and configuration management. If SNMP is the best way to manage one class of devices and CMIP another, I want vendors to take care of that problem and hide it from me."

This plea was made recently by Ron Scott, section head of telecommunications operations at Ontario Hydro, on behalf of the Users Advisory Council of the Network Management Forum. He spoke for many information systems and network managers who are sick of what another user described as the "religious wars" among the proponents of different network management standards.

Unfortunately, those wars show no signs of abating. In fact, the recent appearance of new network management standards may make it even more difficult for users and vendors to choose a clear winner.

A few years back, choices for multivendor network management were simpler — or some would say, almost nonexistent. The vast bulk of network management systems were proprietary, and the only standard in sight was the then-embryonic Open Systems Interconnect (OSI), Common Management Information Protocol/Services (CMIP/CMIS).

Today, network management vendors such as IBM, Digital Equipment Corp. and Hewlett-Packard Co. have shown a willingness to support network management standards. The question is, which ones?

The two current leading candidates for a dominant industry standard are CMIP/CMIS and the Simple Network Management Protocol (SNMP). Developed by the Internet Engineering Task Force (IETF) several years ago as a quick and dirty solution to managing Transmission Control Protocol/Internet Protocol networks, SNMP has won broad support among local-area network bridge, router and hub vendors. However, industry consensus has it that SNMP is too limited to become the enterprise network management protocol, particularly because it lacks the ability to integrate multivendor network management systems.

CMIP is said to offer all of the functionality that SNMP lacks. However, vendors have held off from implementing the protocol, as defined by the Network Management Forum, because they claim that user demand for such products is lacking. Users point out that they cannot base their network management systems around CMIP if it remains commercially nonexistent.

Recent studies conducted by several research firms confirm that large corporations will be making massive network management purchases during the next few years. However, they disagree as to which protocols will dominate that market.

Of 32 companies recently surveyed by Infonetics Research, Inc., 28 said they were standardizing on SNMP, and only two said they were standardizing on CMIP.

Furthermore, the emergence of Simple Management Protocol (SMP), which is said to remedy SNMP's failings, is likely to nail the lid on CMIP's coffin, according to Michael Howard, president of the San Jose, Calif., research firm. Jointly developed by four major SNMP software companies, SMP has yet to be formally adopted by the IETF as the next generation of SNMP. However, the protocol is expected to draw broad vendor support [CW, June 29].

According to a study released by Insight Research Corp. last month, sales of CMIP-based systems totaled $10 million last year and are projected to reach $20 million this year. In contrast, annual expenditures on SNMP-based systems were $150 million last year and are projected to hit $350 million this year, according to the Livingston, N.J.-based research firm.

However, annual CMIP sales will jump to $1.4 billion in 1996, overtaking SNMP sales, which will only hit $1 billion, Insight predicted. A major drive behind CMIP's long-term success will be the carriers, which are in the process of developing network management systems based on the OSI standard, the study said.

Northeast Consulting Resources, Inc. agreed with Insight's assessment — up to a point. "Carriers are more likely to be CMIP-oriented [because] they have to be CCITT-oriented," said Mary Johnston, a principal at the Boston-based firm. "That in turn will drive the multiplexer and possibly the PBX vendors to support CMIP. The question is whether it will get the internetworking community, now set on SNMP, to change its mind in the next few years."

Meanwhile, users are eyeing the Open Software Foundation's Distributed Management Environment (DME). DME's joint support of CMIP and SNMP offers a potential resolution of the standards wars.

Catch-up time

While IBM's network management products will show gains, the higher growth rates will be in the open systems sector

Network management expenditures (millions)

	1991	1992	1993	1994	1995	1996
SNA/NetView	$810	$1,040	$1,300	$1,550	$1,830	$2,050
TCP/IP SNMP	$150	$350	$850	$960	$1,085	$1,020
OSI CMIP/CMIS	$10	$20	$70	$350	$865	$1,400
Others*	$630	$690	$480	$440	$220	$130
Total	$1,600	$2,100	$2,700	$3,300	$4,000	$4,600

*Including DEC/DNA, AT&T/UNA, HP/OpenView

Source: The Insight Research Corp.

Defense firms eye commercial security

Hughes STX, ICL join forces to provide enterprisewide net protection

BY JAMES DALY
CW STAFF

With the Cold War rapidly thawing, large companies with extensive experience in defense-oriented technology are scrambling to apply those skills to the private sector.

One of the bigger projects under way teams security veterans Hughes STX, a subsidiary of Hughes Aircraft Co. that specializes in large-scale custom integration projects, and British computer giant ICL. The companies recently announced plans to jointly market systems similar to those they developed for U.S. and British defense agencies. Officials at the companies said they hope the new venture nets $100 million in annual sales within four years.

The two will take a crack at one of the most bothersome problems facing the information systems manager at large sites: providing network security that will encompass all of the disparate pieces of an open enterprisewide network.

> "LARGE NETWORKS have become playgrounds for hackers and industrial spies."
>
> MORGAN DEATH
> HUGHES STX

"Large networks have become playgrounds for hackers and industrial spies," said Morgan Death, Hughes STX's vice president and general manager.

The sheer size of the networks makes them almost impossible to manage, Death said.

Security experts said heterogeneous networks are especially vulnerable whenever a large number of remote dial-up users are involved.

"Remember that if you as an authorized user can log in from anywhere on a large network, so can anyone else, whether you want them to or not," said David Stang, chairman of the International Computer Security Association in Washington, D.C.

Both Hughes and ICL have previously designed and built huge computer and communications networks for defense and government use. Hughes, an aerospace concern with about $8 billion in annual sales, is an experienced systems integrator that has performed $1 billion in security services in the last five years

Continued on page 55

Ascom Timeplex realigns

BY JOANIE M. WEXLER
CW STAFF

WOODCLIFF LAKE, N.J. — The first major influence of new Ascom Timeplex President William Y. O'Connor was felt this month in the form of a corporate reorganization aimed at allowing the company to respond more quickly to customers.

O'Connor was named president of the networking company in March by Switzerland-based Ascom, which purchased Timeplex, Inc. from Unisys Corp. last September. O'Connor succeeds Unisys veteran Dewaine Osman as Timeplex president.

The vendor has formed three business units that will each focus more sharply on the areas of transport, internetworking and core technologies such as cell relay and network management architectures.

Previously, the firm had corporate directors of engineering, marketing, sales and other functional areas, company spokesman Tony Squeglia explained.

To each its own

Now, each of the three business units will have its own functional head who will report to O'Connor in a matrix style of management.

Prior to the reorganization, directors "couldn't help but become a bottleneck" because they were responsible for a function for the whole company, Squeglia said. One analyst pointed out that acting more quickly — a similar goal that IBM set nearly a year ago with its corporate restructuring — is critical in light of the shifting nature of the corporate sell.

"Today's client/server computing paradigm is requiring vendors to "sell out to business units as well as up to financial executives," noted Jeremy Frank, vice president of European telecommunications strategies at Gartner Group, Inc., a Stamford, Conn.-based consultancy.

Splitting into focused groups "can allow companies to form very lean, aggressive business units that can compete in their niche by making decisions when they need to make them," Frank said.

Squeglia said that Ascom Timeplex is also forming vertical marketing groups of people with expertise in specific industries.

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Defense eyes security

CONTINUED FROM PAGE 53

for the U.S. Department of Defense (DOD) and related agencies.

At issue is more than security, Death said. Systems are being underused, information is not easily disseminated or made available to everyone who needs it, and tracking enterprise activity is an elusive dream. "These are the same problems that the government and defense community had for years," he said. "Networks are so large or so diverse that users have a difficult time navigating through their own computers."

HUGHES STX will take the lead in managing the venture, but it will be structured to draw on talents throughout the ranks of both corporations.

The pair initially expects to offer two plans to secure large networks — typically 5,000 or more nodes. They include the following:

- First up will be ICL's Access Manager, which allows users to log on and be presented with a single menu of all the system resources to which they are allowed.

Typically, many large corporate networks tying hundreds of dissimilar computers together force the user to laboriously navigate through an elaborate network by memorizing dozens of passwords.

- For sites involved in government work that requires Posix and Government Open Systems Interconnect Profile standards compliance, the pair will offer the Corporate Headquarters Office Technology System (CHOTS), which was developed by ICL for the UK's Ministry of Defence. CHOTS is a secure office automation system that can accommodate 30,000 users in dozens of locations, according to ICL spokesman Andrew Roberts. It adheres to the B1 level of security described in the DOD's Orange Book guidelines.

CHOTS provides a long list of functionality, including stringent methods to determine the identity and authenticity of the user, encryption techniques, a means of restricting network resources and a comprehensive record of all activities performed on the network. Users are also assigned one of 32 classifications, such as Secret, Confidential or Classified, and are only permitted to use the network within the boundaries of their classification.

Users should expect to pay between $500 and $1,000 per workstation for either Access Manager- or CHOTS-provided security, Death said, but "we're working to get that number down." He added that both Access Manager and CHOTS can be integrated into existing systems. "Users won't have to rip out everything they already have."

Hughes STX will take the lead in managing the venture, but it will be structured to draw on talents throughout the ranks of both corporations.

Although the pairing marks another in a series of moves by Hughes to deploy its defense-related skills in the commercial sector, it is not alone in the endeavor. Several other companies have announced products offering the B1 level of security, including Informix Corp., which in February announced the B1-level OnLine/Secure 4.1, a relational database management system for secure Unix platforms.

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International conglomerate eyes OSF

Unilever's 500 firms undergo migration, seeking gain in software portability and productivity

BY LEONARD A. HINDUS
SPECIAL TO CW

Unilever PLC is in the process of migrating its 500-plus operating companies to Open Software Foundation (OSF) protocols, with the goal of providing software portability across its worldwide operations.

Unilever expects savings on the order of hundreds of millions of dollars a year from being able to port applications and share data across its companies' information systems, said Nick White, head of telecommunications at Unilever.

Unilever, based in London and Rotterdam, the Netherlands, made the decision to standardize its information technology worldwide on the OSF client/server model in 1990. The company completed definition of the standards in 1991. Unilever expects to complete the migration to the OSF corporatewide by 1996.

The biggest expected payoff from the new architecture is the ability to share data among all of its 20,000 managers within two years, said Regis Garbo, director of data communications and IS at Lever Brothers USA, a Unilever company. "Our companies used to operate in isolation; now they're learning to work as teams." Without standards, "it was hard enough to access data within a company, let alone share data between companies," Garbo said.

"We want to be able to take software from one company and transfer it to any other company and have it up and running within five working days," explained Chief Information Officer Michael Johnson.

In addition, the corporation expects to reduce the development of typical software applications from two years to three months.

The OSF standards will also let several operating companies share the cost of software systems that none of them could afford to develop alone. "We can no longer afford to reinvent the wheel in each of our 500 operating companies," Johnson stated.

A $40 billion international conglomerate, Unilever includes companies such as Lever Brothers, Thomas J. Lipton, Inc., Ragu, Calvin Klein, Inc. and Faberge.

Garbo reported that Lever Brothers has already cut software development time with the use of development tools and the client/server model by a "factor of 10."

Unilever plans to implement the OSF Application Environment Specification standards suite, which includes the OSF/1 operating system, the Motif interface, the OSF's Distributed Computing Environment and SQL.

Unilever has had to sell the concept of a corporatewide information technology to its operating companies, which are accustomed to enjoying a high degree of autonomy in their IS buying decisions. Steering committees have been formed in which technical managers from the various companies can provide input into the development of the corporation's information and telecommunications architectures.

Unilever also plans to implement a corporatewide videoconferencing network based on BT equipment and services. The network will quickly pay for itself through reduced travel expenses and is also expected to foster "more frequent and more productive communications between the managers of different operating companies," White said.

Unilever selected BT, after evaluating several competing systems, as the company that demonstrated the greatest degree of interoperability via the CCITT H.261 video coding/decoding standard.

Videoconferencing will be installed in more than 100 Unilever locations within the next three years. "The real proliferation will come with the development of desktop video/data communications workstations," White predicted. "We ensured that our directory is capable of registering up to 100,000 video workstations."

Unilever has negotiated agreements with three computer vendors: Digital Equipment Corp., Hewlett-Packard Co. and IBM. The operating companies are free to buy from any of these vendors. Unilever selected databases from Oracle Corp. and Sybase, Inc.; however, managers can select any database that has the same SQL access commands as Sybase and Oracle.

In the same way, Unilever has global agreements for WordPerfect Corp.'s word processing software and Lotus Development Corp.'s 1-2-3 spreadsheets. U.S. Sprint Communications Co. was selected for global electronic mail, U.S. voice and data communications and European data communications.

Hindus is principal at Ribbledale Communications, Inc., a Hudson, Mass., marketing and communications firm.

ON SITE

Unilever

Unilever PLC
London and Rotterdam, the Netherlands

- **Challenge:** To provide software portability across worldwide operations of 500-plus operating companies.
- **Strategy:** To standardize on OSF protocols.
- **Goal:** To save hundreds of millions of dollars per year by sharing data and common applications.

Nothing personal

As part of the decision to standardize on open systems, Unilever will not buy any more personal computers after 1993.

"We're not going to throw away investment in PCs," said Nick White, head of telecommunications at Unilever. "We'll simply stop buying any more."

In the place of PCs, Unilever will buy Unix-based workstations from the three approved vendors, IBM, DEC and HP. White stressed that this decision is based on Unilever's desire to establish total interoperability among the systems used by each of the more than 500 operating companies.

White also said Unilever wants to get floppy disks off the system. "You don't need floppies in an open client/server environment. Floppies represent a security risk and the major source of viruses." He said that if users want to move data from one point to another, they can draw it from the network via the client/server architecture.

NEW PRODUCTS

Gateways, bridges, routers

Micom Communications Corp. has introduced NetRunner, a remote Ethernet bridge that integrates voice, fax and data traffic with local-area network traffic over low-speed leased lines.

NetRunner uses Micom's rapid relay technology, which is a combination of fast-packet multiplexing, advanced voice, data and local-area compression and fax demodulation. NetRunner supports all LAN protocols and traffic, including Transmission Control Protocol/Internet Protocol, Apple Computer, Inc.'s AppleTalk, Digital Equipment Corp.'s DECnet and Novell, Inc.'s IPX, according to the company.

NetRunner prices start at $3,500.

Micom Communications
4100 Los Angeles Ave.
Simi Valley, Calif. 93063
(805) 583-8600

Netronix, Inc. has announced the latest version of its TokenMaster 2000 local Token Ring bridge.

TokenMaster can achieve speeds of 15.4M bit/sec. by incorporating a series of modifications known as the Token-Ring Interface Accelerator. The accelerator was designed for speed enhancement and improves the performance of the IBM Token Ring mini-module within the Netronix Token Ring bridge.

The product benefits users running applications utilizing frames of 500 bytes or larger, according to the company.

TokenMaster 2000 costs $4,690.

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Datability, Inc. has introduced Mux/Routers, a local-area network internetworking solution.

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Mux/Routers costs $2,999.

Datability
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Customer premises equipment

Racal-Datacom, Inc. has announced an inverse multiplexer based on its Racal Communications Processor (RCP).

The RCP-BMM (Bandwidth Management Module) is a solution used for high-bandwidth applications such as videoconferencing, local-area network internetworking and disaster backup of high-speed trunks.

The RCP-BMM has applications that include bulk data transfer and computer-aided design and manufacturing. The unit can automatically demand more bandwidth from the network provider on an as-needed basis. The RCP-BMM supports from two to eight input ports and multiple network connections, according to the company.

Pricing for the RCP-BMM starts at $10,000.

Racal-Datacom
1601 N. Harrison Pkwy.
Sunrise, Fla. 33323
(305) 846-1601

X Window Systems

Visual has introduced the TX800C, a color open network terminal.

According to the company, the TX800C is the most upgradable and interoperable configuration of any X terminal-style device available. An industry-standard S-bus expansion slot gives the TX800C the ability to download and run a variety of other terminal services. The TX800C has features including a small footprint, fanless operation and simple single in-line memory module expansion, according to the company.

The TX800C costs $3,495.

Visual
120 Flanders Road
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Integrated Computer Solutions, Inc. has announced Ada-Motif, an Ada solution for the X Window System user.

Development of X Windows applications can be done entirely in Ada. Users can create graphical user interfaces and custom widgets. Ada-Motif supports intermixed Ada and C routines, simplifying the use of the product with existing systems.

Ada-Motif costs $2,995.

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IBM Business Partner

COMMENTARY

Jean S. Bozman

Examining RDBMS angst

Oracle's June introduction of the Oracle 7.0 relational database solved one set of problems for users: It put the names of Oracle 7.0's new features on paper, and it confirmed the 20% price premium placed on the relational database's three options for programming, distributed database and parallel processing.

But problems remain in the planning area. How should users view the relational database market, now that the largest independent player, $1.1 billion Oracle, has put its cards on the table? Should users believe the analysts' predictions that RDBMSs are quickly becoming commodity products? Will consulting and programming tools be the only things that add value to database engines when users switch to open systems?

Well, the world hasn't changed overnight. Users should note that Oracle 7.0 will not be shipped until the fall and that most Oracle users will probably acquire it next year — or later. By that time, comparable products will be available from all major RDBMS vendors. Even so, competing vendors will continue to insist that the Oracle product has functional gaps and that their own products are still superior, in some ways, to Oracle 7.0.

Under fire

Users are already getting such messages from Oracle's three primary competitors: Sybase, Ask's Ingres Products Division and Informix Software. Turning somewhat defensive, each prepared a formal response to Oracle 7.0: Ingres wrote a white paper comparing its features with Oracle's. Informix released a folder of fact sheets labeled "What [Oracle] won't be telling you on June 15." And Sybase executives, who prepared their own competitive-analysis brochures, are still shaking their heads over Oracle's veiled references to an outclassed "early client/server" database product during the Oracle 7.0 announcement in New York. Oracle executives have since confirmed that the reference was to Sybase's 4-year-old

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Boole to outline distributed plan

BY JOHANNA AMBROSIO
CW STAFF

Boole & Babbage, Inc. will lay the groundwork for its distributed systems management products later this week with a new release of its underlying base technology.

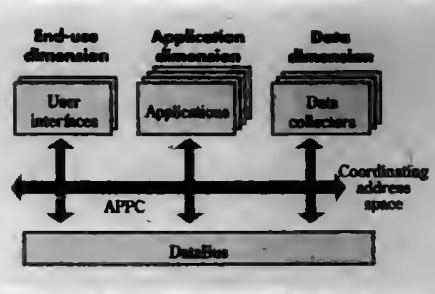
The first product to incorporate the new technology will be available on Wednesday, said Olivier Thierry, director of marketing and business development at Boole. The product, MV Manager for MVS, helps users monitor performance of an entire application instead of having to track each individual subsystem, such as JES3 or CICS, on different terminals.

With MV Manager, users can see an unlimited number of subsystems on one screen. Users can also see the work loads of multiple mainframes on the same screen. Pricing for MV Manager, part of Boole's MainView family, starts at $19,700.

At the heart of both the new technology and the product is the underlying principle that users should be able to have "a single point of command, like the cockpit of a jet, that monitors the entire enterprise," Thierry said.

That direction is important to Stone Container Corp. in Chicago, a large Boole customer, said Rich Antonini, manager of computer resources. He said his company will install MV Manager for MVS later this summer. "I've seen it demonstrated, and it looks like a very good product," he said.

Bill Chewning, assistant director of information systems operations at the National Geographic Society in Gaithersburg, Md., and a Boole customer, said the new product sounds attractive, but it is too late for his shop. "We just brought in a competitive product that will be in production within a couple of weeks," Chewning said.



Boole & Babbage's technology base for its distributed systems management products separates the user interface, applications logic and data into different components

Jeff Schulman, an analyst at Gartner Group, Inc. in Stamford, Conn., said, "Boole's architecture walks a nice line between the proprietary and open worlds. The key for them will be to get the products out the door and to sell."

The new technology, called Boole & Babbage Intercommunication Facility Release 3.10 (BBI-3), essentially separates the graphical user interface, the applications logic of the program and the data into different components. That way, any one of the three can be changed without affecting the other two.

In the future, Boole said, BBI will support IBM's OS/2 with Presentation Manager. The firm also plans to let BBI combine information from multiple systems and products in one window, as opposed to many.

Although MV Manager will be the first product to implement BBI, other products are slated to follow this summer, including new versions of CMS Monitor and Net/Avail.

GeoVision to announce Vision 2.0 GIS

Release based on relational architecture runs with commercial RDBMSs

BY MELINDA-CAROL BALLOU
CW STAFF

DENVER — GeoVision Systems, Inc. this week will announce Vision 2.0 Enterprise Geographic Information System (GIS), which offers a relational architecture that allows the product to run in conjunction with commercial relational database management systems.

This new capability allows users to pull mainstream corporate data into the spatial context offered by GIS technology, company officials said.

Users can, for instance, integrate financial, personnel and facility data with spatial information such as maps, drawings, photographs and diagrams from the GIS application.

Previously, requests for spatial data would go to an executive information systems (EIS) proprietary database, and requests for tabular data or attributes would go to the RDBMS. Both sets of data would then be pulled into the GIS application for analysis.

GeoVision engineers rewrote the database access layer for this version of the product to route all data requests directly to the RDBMS, providing direct access to spatial indexing, coordinate strings and graphic attributes. This offers faster access to the data as well as complete RDBMS and GIS functionality — including data integrity, recovery and security features. The new version also supports the Open Software Foundation's Motif graphical user interface.

Vision GIS supports RDBMSs from Oracle Corp. and The Ask Cos.' Ingres Products Division in this first release, with others to follow, officials said.

An industry analyst said GeoVision's support of RDBMS capabilities offers significant advantages.

"Other GIS vendors have interfaces to RDBMSs, but you lose performance when you use those," said Gisela Wilson, manager of computer-aided design and engineering programs at International Data Corp., a market research firm based in Framingham, Mass. Vision 2.0 "can use the database management capabilities that the RDBMS vendors have developed, which is terrific. You can overlay commercial information with geographic information, which opens up an entirely different area of applications" to users.

Users were also enthusiastic about the new capabilities of the product. Government agencies, such as those in Orange County, Fla., are using Vision GIS to integrate data across different departments.

GIS joining

"GIS offers tight coupling with Oracle, and we've been able to build on its capabilities," said Pierce Eichelberger, GIS project coordinator at the Orange County Data Center in Orlando, Fla. "We have GIS users doing joins from node to node across VMS and Ultrix, and it's so easy they tend to forget where they're doing their processing." In addition to the VMS and Ultrix nodes, Eichelberger said, the center has about 150 Apple Computer, Inc. Macintoshes and three dozen personal computers in its GIS network.

"Geography provides a natural framework for viewing and integrating a range of data. Now users can navigate from one database to another via a series of foreign key joins," he added.

Vision 2.0 is scheduled to begin shipping by the end of this month. Pricing ranges from $2,000 to $20,000.

The product runs on Unix workstations and servers from Digital Equipment Corp., IBM and Sun Microsystems, Inc. and also on VMS.

Integrator pitches system to newspapers

BY MARK HALPER
CW STAFF

SACRAMENTO, Calif. — Small could be beautiful for newspaper computer system specialist System Integrators, Inc. (SII), which is parlaying Tandem Computers, Inc.'s recent release of a low-end, fault-tolerant system into sales for small to midsize clients.

Sacramento-based SII is aiming its new System 55/XR at papers with circulations of 20,000 to 80,000. The 55/XR is a distributed system built around Cupertino, Calif.-based Tandem's 8-month-old CLX/R series, a less costly and less powerful reduced insruction set computing-based version of Tandem's proprietary complex instruction set computing-based CLX line.

The CLX/R uses Mips Technologies, Inc.'s R3000 processor and runs Tandem's proprietary fault-tolerant Guardian operating system.

Earlier this month, SII signed a deal with the *Santa Maria Times* in Santa Maria, Calif., to install a distributed system

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WHY A COMPANY THAT'S KNOWN FOR RELIABLE PERFORMANCE GOT A CHARGE OUT OF OURS.

When millions of people worldwide turn to Duracell batteries, they expect the best in performance. When Dan Harris, MIS Manager for Duracell Australia, turned to IPL's 8mm back-up, he expected the same.

"Before IPL, back-ups were a real problem for us. Using standard tapes, it would take a full nine hours to do a complete system save. We'd have to open our facility on a Sunday, and with a day of tedious work in front of us, the process was very stressful."

Instead of hiring additional staff to solve the problem, Dan turned to IPL's 8mm solutions. "Thanks to IPL's 6765 tape drive, Duracell's back-up is now a totally unattended process using 8mm technology. We even took the extra step of testing the drive at our IBM disaster recovery site in Sydney. It performed impeccably."

Which means fewer headaches for Dan, and more time to concentrate on other areas of the business. "Working with a storage leader like IPL was refreshing. The quality information and attention we received helped us make a comfortable decision, and local service made installation simple. We're grateful to have such a top performer on our side."

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Tool set aids software firms

BY MELINDA-CAROL BALLOU
CW STAFF

EMERYVILLE, Calif. — Scopus Technology, Inc. recently unveiled ProTeam, a family of products said to automate and integrate engineering, quality assurance, technical support and sales operations for software companies and for software-centered organizations.

The ProTeam modules include SupportTeam for call tracking and customer support; QualityTeam for bug tracking and quality control; and ViewTeam for graphical analysis of information. The data for all of the modules is located on Sybase, Inc.'s SQL Server relational database management system, and a runtime copy of the database is included with the product.

"Our product is client/server-oriented — a substantial part of the application runs on the server, which also provides services to the client," Scopus President David Schwab said.

These applications include a notification service that builds business rules to drive certain events, such as who gets notified if a bug has been sitting unassigned for too long; a full search-and-retrieval system; and a service that reports the average time required to resolve a bug.

ProTeam applications can be customized for specific site requirements without the need for programming, according to company officials.

"We provide a standard off-the-shelf application that is highly configurable by the MIS user via graphical manipulation of the entire application, letting them rename fields, add buttons and do what they want without having to touch the code," Schwab said.

End users agreed. "The configurability of the system has been very important for us — they offer a standard product, and you can easily make changes," said Ken Erikson, information systems project leader at Viewlogic Systems, Inc., a software manufacturer of electric design automation tools based in Marlboro, Mass. "We're looking for ways to present the data graphically and to track the integrity of the information that we have. ProTeam lets us do that."

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>
> KEN ERIKSON
> VIEWLOGIC SYSTEMS

Other users cited the advantages of ProTeam for effective customer support.

"Customer support is nothing more than a hub of information that needs to be disseminated throughout the company. If a problem escalates, for instance, I want automatic notification so that I can make sure that the technical or sales rep is aware of it," said Cecil Lawson, manager of customer services at Rational, an object-oriented tools company in Santa Clara, Calif.

"I've used this as a management tool to tell me what users are calling about. I can log on very easily and intuitively get that information. And it also allows upper management to see what's going on by offering easy access to information for the heterogeneous groups within our organization."

ProTeam is available now, and a typical configuration, which supports four servers for technical support people and 20 client engineers, is priced at approximately $45,000. ProTeam clients can run on any system that supports X Window System, and the server portion will run on any system that supports SQL Server, including Digital Equipment Corp. VAXs and DECstations, IBM RISC System/6000s, Sun Microsystems, Inc. SPARCstations and Hewlett-Packard Co. HP 9000s.

File transfer tasks eased with Outbound package

BY CHRISTOPHER LINDQUIST
CW STAFF

File transfer and communications packages normally depend on the node system to initiate the transfer. Such a situation requires the personal computer user to be savvy in both connecting to and retrieving the necessary data, which require time and training and can incur support costs as well.

In an effort to reduce these expenditures, particularly in cases of nightly transfers of data, San Francisco-based Firesign Computer Co. has produced Outbound, a host-based alternative.

"The philosophy here is that we want the control and the error reporting to be on the mainframe end," he said.

Toward that end, the package allows systems analysts or managers to determine what data to transfer to the [illegible] nodes and when, according to the company.

Outbound runs under DOS, Microsoft Corp.'s Windows or OS/2 and allows a VM- or MVS-based IBM 370 or 390 host system to undertake a file transfer without any interaction by the PC user. All transactions are controlled from the mainframe and run in the background on the PC.

Outbound consists of about 200K bytes of host code and a small terminate-and-stay resident program for DOS systems. OS/2 and Windows versions run as background programs.

Host pricing varies depending on installation but is usually around $15,000, according to the company. PC copies are $150 for DOS and Windows versions and $300 for OS/2.

An optional service contract is also available.

IBM, Hitachi ink printer deal

IDG NEWS SERVICE

TOKYO — Hitachi Ltd. and IBM have agreed to co-develop a computer printer, according to a Japanese press report.

The reported agreement covers development of print mechanisms and printer controllers used in large-scale printers for office systems and mainframes, as well as software for the printer.

The two companies already cooperate in several fields. Hitachi, for example, sells IBM-compatible mainframes.

The printer to be co-developed will reportedly be manufactured by Pennant Systems, a Connecticut-based company that makes IBM printers, and by Hitachi Koki Co., which currently manufactures Hitachi's printers.

IBM set up separate companies for external memory devices and printers in December 1991 as part of its streamlining effort that put more control in the hands of smaller operations to boost competition.

The two firms will start making the printer as early as 1993, according to the report. IBM will reportedly sell the printer, which could cost as much as $640,000, worldwide.

SII parlays Tandem with System 55/XR

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based on the 55/XR.

The *Santa Maria Times*, which has a daily circulation of 22,000, was the third paper to purchase a CLX/R system from SII. Last month, two jointly run suburban dailies in Pittsburg, Calif., the *Valley News Dispatch* and *North Hills News Record*, began installations.

SII, which claims to be Tandem's largest reseller, hopes that the low-end system will generate additional business with newspapers that otherwise could not afford more powerful fault-tolerant Tandem equipment.

Sensible strategy

Santa Maria Times publisher John Shields said the strategy makes sense.

"The 55 was downsizing from the larger papers to where it is more affordable for the smaller ones," Shields said. "If SII were restricted to the large papers, they would have a limited market."

Tandem's prices for the CLX/R start at approximately $25,000, compared with $125,000 for the CLX series.

SII's largest customer is currently the *Los Angeles Times*, which runs 1,500 personal computers connected to about 20 midsize Tandem computers.

"We've been out of their cost range," the spokesman said, referring to the smaller size newspaper.

"There are upwards of 200 papers out there" that might now consider a system based on Tandem's new machine, the spokesman added.

SII is not, however, expecting meteoric results.

"The recession still has its stranglehold around the newspaper business," the spokesman said.

For privately held SII, that stranglehold choked revenue in the fiscal year ended Sept. 30, 1991, to $67 million — down from $72 million the previous year.

SII expects to complete the *Santa Maria Times* installation by the end of this month, according to company officials.

The paper will put a few users on the system July 20, according to Shields. It plans to bring the entire paper on-line after Labor Day weekend, when the company will run its editorial and advertising operations on the system, he said.

SII is tying the Tandem box — which can support up to 96 workstations — to 26 Intel Corp. 80386-based PCs.

Safe choice

The *Santa Maria Times* evaluated other fault-tolerant systems, but it chose the Tandem model because it judged it to be the most fail-safe, according to Shields.

The project entails loading the 26 Intel PCs with cards that emulate SII's Coyote terminals, which prior to client/server computing were the front-end boxes that SII typically installed, Shields said.

SII is loading its own software for both editorial and advertising staffs and is also installing an Apple Computer, Inc. Macintosh pagination system.

The *Santa Maria Times* has been using SII's System 22, a 10-year-old machine.

IN BRIEF

Ingres joins with ESL

■ **The Ask Coe.' Ingres Products Division** moved a step closer to object-oriented database systems recently by agreeing to incorporate spatial data management technology from ESL, Inc. in Sunnyvale, Calif. The joint development agreement will extend the Ingres 6.4 database's Object Management module by the end of 1993, said Marilyn Bohl, senior vice president of engineering at Ingres. ESL, a defense contractor, has working prototypes of this object management capability for multidimensional data types, according to ESL President Art Money. Possible applications include geographic information systems, cartography, weather prediction and computer-aided design and manufacturing, according to Ingres officials.

■ **Epoch Systems, Inc.** will supply **Tandem Computers, Inc.** with data network management software technology to support Tandem's image storage management products. The new local-area network-attached Tandem Image Storage Server can store and manage nearly 20 million images or about 1 terabyte of data, the company said. Pricing ranges from $103,000 to $334,000.

Bozman

CONTINUED FROM PAGE 61

client/server technology.

All of this angst in the vendor community puts users in an unusually strong position for next year. Those who adopt open systems should be in a position to pick and choose their database of choice for new projects. For that reason, pricing should be competitive, particularly on Unix platforms. Users should also be able to mix and match third-party development tools from Uniface, Unify, Progress, JYACC and others for client/server development on multiple platforms.

However, users should pay attention to the number of strings attached to each database vendor's system. For example, Oracle users will need to buy SQLnet 2.0 to make distributed database applications work, and the next generation of Oracle development tools is not yet ready for announcement.

Many Sybase users are developing applications for the current Sybase 4.2 and 4.8 products, but some are still not happy with the packaged Sybase APT tools. And, Informix users who want a multithreaded server must wait for Informix 6.0's 1993 arrival.

You would think there was a great gnashing of teeth about these product schedules. That's what the highly competitive vendors would have you believe. Yet, a number of users have said they are quite content to start planning for Oracle 7.0, or its counterparts, as long as they know about database features and where to get application development tools.

Finding the right ingredients

The challenge that looms on next year's horizon is how to best assemble, how to best mix and match, the "open" database tools with the most appropriate database. Some confident Oracle users say they know exactly what they want and are glad the day of plug-and-play systems has come. They plan to install their own Oracle 7.0 systems within months.

Other users — mindful of the complexity of distributed database systems — say they will turn to consultants or RDBMS vendors for help with systems integration.

That is exactly what Oracle is counting on. Oracle has roughly five times the revenue of its largest competitors and more than a thousand staff consultants. It plans to use its throw-weight to boost the size of its installed base and to bring a new generation of customers into the fold.

Bozman is *Computerworld*'s West Coast senior editor.

Third parties target VAX 6000

BY MELINDA-CAROL BALLOU
CW STAFF

HOPKINTON, Mass. — Third-party memory and storage providers are targeting Digital Equipment Corp.'s VAX 6000 line with a series of products and price cuts.

Clearpoint Research Corp., based here, introduced the DCME-V60 memory board for VAX 6000 Model 500 and 600 computers and the DCME-V61, a memory upgrade solution for DEC's VAX 6000 Model 200, 300 and 400 minicomputers.

Separately, Dataram Corp. in Princeton, N.J., announced a 20% price reduction of the company's DR600 expansion memory board for DEC's VAX 6000 Model 200, 300 and 400 minicomputers.

Clearpoint officials said their release of the DCME-V60 offers the first third-party memory product targeting DEC's 6000 Model 500 and 600 computers.

"We had to reverse the XMI bus, and that took a lot of work because the protocol and the interface logic reside in the XMI chips," said Mitch Wolf, product manager of DEC memory at Clearpoint. "We had to reverse-engineer not only the bus but also how the different boards talk to one another."

Wolf said he expects that DEC will not pursue litigation against Clearpoint for this new product, adding that because the companies resolved their pending suit over the BI bus litigation, they have a more amicable relationship. Earlier this year, neither party was found guilty of anything as a result of the BI bus litigation filed against Clearpoint by DEC.

"DEC is looking at the product," Wolf said. "Neither of us are companies that have tons of cash lying around, and both of our goals are to work and make money and not to spend money funding lawyers. We spent a lot of time on the legal side as well as the engineering side [in developing DCME-V60] and feel that we have a clean design. Our goal here is to actually get a license, and we're meeting with [DEC] on an ongoing basis."

Both the DCME-V60 and the DCME-V61 are shipping this month. Pricing for the DCME-V60 ranges from $22,860 for 32M bytes to $71,445 for 128M bytes. Pricing for the DCME-V61 ranges from $16,100 for 32M bytes to $57,870 for 128M bytes.

Dataram's DR600 now ranges in price from $15,000 for a 32M-byte board to $55,000 for a 128M-byte board.

NEW PRODUCTS

Database management

Compuware Corp. has released TransRelate Workbench for DB2 2.1.

This release offers new utility management capabilities, expanded catalog analysis, reporting features, enhanced migration facilities and support for DB2 Release 2.3. Users can analyze DB2 catalogs and create and modify DB2 objects without writing SQL.

DB2 utility management and DB2 security administration capabilities are provided in the Workbench, and the product automatically generates procedures that handle referential integrity, authorizations, utilities, data and plans, according to the company.

Pricing for TransRelate Workbench for DB2 Release 2.1 starts at $49,000.

Compuware
31440 Northwestern Highway
Farmington Hills, Mich. 48333
(313) 737-7300

Information Retrieval Cos. has released Automated Systems Information Management (ASIM) Version 4.3.

The product provides components for enterprisewide systems management including asset, problem, request, change, configuration and human resource administration.

ASIM's dynamic structure provides reporting capabilities through a knowledge base of rules and data definitions that it builds and shares between each systems area.

A Configuration and Voice Management feature provides connectivity data to be defined within a component record, which eliminates the need to create individual connection records, according to the company.

Prices for the ASIM product line range from $5,000 to $135,000.

Information Retrieval
Suite 610
312 W. Randolph
Chicago, Ill. 60606
(312) 726-7587

Utilities

Macro 4, Inc. has announced Tubes VTAM Version 2.3, an installed session manager.

Users can operate in a window environment and cut information from one window and paste it to another. Version 2.3 of Tubes VTAM offers an Advanced Function Option that includes windows, cut/paste, demo/view and network minimizer functions.

New features include support of double-byte character languages, translation tables that support special character languages, refinements in the Tubes Panel and Scripting Language and performance enhancements.

Tubes VTAM Version 2.3 has lease rates of $505 to $1,025 per month depending on mainframe classification.

Macro 4
35 Waterview Blvd.
Parsippany, N.J. 07054
(201) 402-8000

Data storage

Micro Technology, Inc. has announced StingRay, a Call Indicator (CI)-attached server that supports Small Computer Systems Interface (SCSI) open architecture. StingRay seamlessly emulates Digital Equipment Corp.'s Hierachical Storage Controller. The product is the first open systems-based, non-DEC solution for CI-attached storage.

SCSI peripherals can be moved anywhere across the DEC architecture, which allows peripheral storage, backup device and archive system investments to be preserved indefinitely.

Prices begin at $35,000 for 21-port capability.

Micro Technology
5065 E. Hunter Ave.
Anaheim, Calif. 92807
(714) 970-0300

Software application packages

E3 Associates Ltd. has introduced E3Trim, a purchasing and inventory management system for IBM Application System/400 computers.

E3Trim performs economic analysis and has a base system with functions such as demand forecasting, lead-time forecasting, service level and safety stock analysis and order-cycle analysis. According to the company, E3Trim was designed with additional options including forward buying, diverter, or alternate source buying, order planning, booking and purchase order management. E3Trim and the AS/400 can be interfaced to most other accounting or business information systems and computer models.

E3Trim prices start at $24,000.

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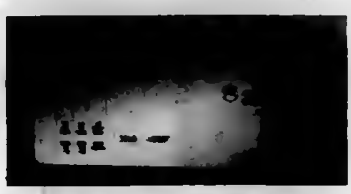

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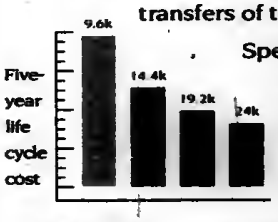

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	PROGRESS SOFTWARE	SYBASE	INFORMIX	INGRES	FOCUS	ORACLE
[illegible]						
[illegible]	9.3	8.7	8.8	8.1	7.7	8.8
Ease of Use	9.1	8.2	8.2	7.9	7.9	7.4
Ease of Install/Upgrade	8.9	8.0	8.8	7.1	6.1	7.8
Price/Performance	9.1	8.3	8.5	7.5	8.1	7.1
FUNCTIONALITY						
Flexibility	9.1	8.8	8.8	8.0	8.4	8.8
Interface Capabilities	8.9	8.9	8.4	8.7	8.7	8.0
Comprehensiveness	9.1	8.8	8.9	8.3	8.7	8.7
User Friendliness	8.9	7.7	8.8	7.9	7.5	7.3
OS Compatibility	8.9	8.4	8.8	8.1	8.8	9.0
PRODUCT SUPPORT						
Documentation	8.9	8.2	8.8	8.7	8.2	7.3
Vendor Training	8.7	7.8	8.0	7.2	7.8	8.0
Problem Response Time	8.8	7.5	7.2	8.1	8.4	8.7
Quality of Vendor Support	8.8	7.8	7.8	8.4	8.8	7.0
Frequency of Releases	8.8	7.5	8.7	7.2	7.7	7.2
Response to User Request	8.8	7.5	7.8	7.0	7.0	7.3
Overall Satisfaction	9.3	8.7	8.5	8.8	8.0	7.8

Compiled from the 1991 Datapro Reports on Software/Computer System Status Software, available for each product listed (Release from 1990). The results are those of actual users of the products as surveyed by Datapro.

VAR[illegible]
DBMS R[illegible]

	PROGRESS SOFTWARE	INFORMIX	[illegible]	[illegible]	[illegible]
PRODUCT FEATURES					
Ease of use	9.02	7.07	8.00	6.10	5.80
Memory requirement	7.37	6.16	4.25	6.19	5.32
Ease of programming	9.03	7.09	8.00	6.50	6.00
Ability to manipulate data	9.19	7.41	7.44	6.81	5.87
Reporting capabilities	9.02	7.44	7.80	6.65	6.78
Provision for software security	8.56	6.93	7.28	5.07	6.78
Report writing capabilities	8.39	6.72	6.50	6.71	4.11
Ease of user interface	8.81	7.06	6.18	6.10	6.10
Software integration capabilities	8.34	7.28	7.24	6.27	6.10
Ease of data entry	9.00	7.66	7.66	6.61	6.11
Satisfaction with product profitability	8.56	7.04	6.22	5.58	6.13
Overall quality of product	8.94	7.37	6.80	6.32	6.44
Product Features Average	8.84	7.10	6.61	6.14	5.60
SUPPORT FEATURES					
Provision for customer support	7.74	5.98	6.76	5.77	5.50
Charges for training time	5.00	4.00	4.50	6.64	4.56
Provision for technical support	7.80	6.76	5.72	5.87	5.22
Provision for marketing support	6.00	6.84	6.00	6.13	3.80
Documentation & product information	8.74	6.73	6.56	6.45	5.56
Frequency of updates & revisions	8.30	5.88	6.34	5.57	6.00
Support Features Average	7.73	5.76	5.84	5.90	4.94
Overall Average	8.34	6.96	6.36	6.06	5.38

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CPWADV0713

Unix CASE market: Three more's a crowd

HP, Cadre and Cognos try to get a piece of the growing action with new product announcements

BY KIM S. NASH
CW STAFF

The Unix CASE market just got more crowded.

Hewlett-Packard Co. and Cadre Technologies, Inc. recently announced new software tools to run in and help build programs for Unix environments.

Separately, Cognos, Inc. elbowed its way into the crowd with an entirely revamped product line designed to cater to Unix development.

Boom time

Analysts last week warned of an impending brouhaha in the Unix computer-aided software engineering (CASE) arena as more vendors leap in to grab a share of the growing action.

Worldwide sales of Unix-based application development products topped $1.39 billion in 1991, up from about $1 billion for 1990, according to Dataquest, Inc. Sales projections for 1992 were unavailable.

However, although some CASE makers have gotten into the commercial Unix act, most of that revenue was brought in by vendors in the technical sector, according to Andrew Topper, an analyst at Foresight Systems, Inc., a consulting firm in Okemos, Mich.

Until mainstream CASE players such as Texas Instruments, Inc. and KnowledgeWare, Inc. deliver Unix products — not just product plans — commercial users will be wary of Unix CASE, Topper said.

Meanwhile, HP and other vendors are doing their part to further the cause. HP, a relative old-timer in the Unix development tools market, last week expanded SoftBench, its development framework, with two products designed to help users better manage CASE projects.

ChangeVision is a Unix-based software change request management tool designed to help programmers automate, track and measure modifications to programs. SynerVision is a set of process management templates that can be filled with business and information systems data and project goals to help organize large CASE jobs.

The products, which run on Unix machines from HP and Sun Microsystems, Inc., are priced at $5,950 for the set. Bought individually, SynerVision costs $3,950, and ChangeVision costs $2,950.

Alan Arnette, marketing manager at HP's Software Engineering Systems Division, said SoftBench sales ballooned 60% during the first half of 1992 compared with 1991's first half. He declined to enumerate exact figures, however, saying that the company does not break out revenue for separate business units.

Still, about 40% of SoftBench sales have been to the commercial sector, with the majority going to the scientific community, Arnette acknowledged.

Separately, Ottawa, Ontario-based Cognos, which has catered primarily to the MVS operating system for most of its 23-year history, plans to break free of proprietary reins with tools for six Unix platforms, including HP's HP/UX.

Most of the company's PowerHouse 7.0 family is due out next month. The line will also run on Unix flavors from Data General Corp., IBM, Digital Equipment Corp., Sun and The Santa Cruz Operation.

Existing PowerHouse-built applications will not be obsolete, according to Cognos. Users can recompile programs constructed with previous versions of PowerHouse to run in a Unix environment "with little effort and without losing any functionality or data," said Ron Zambonini, senior vice president of research and development at Cognos.

For its part, Beaverton, Ore.-based Cadre introduced Ensemble, a six-component suite that includes products for constructing, documenting and testing C programs. Reverse-engineering tools are also in the works, the company said.

Prices for the modules, which are scheduled to ship next month, range from $3,000 to $6,000. The suite will initially run on Sun's SPARC FCS, with AIX, HP/UX and Ultrix to follow, Cadre said.

Report card

Cognos' PowerHouse 7.0	August
HP's SoftBench family	Some out, more due in December
Interactive Development Environments' Software through Pictures	Already out
KnowledgeWare's ADW	Late 1992
Texas Instruments' IEF	Late 1992

CW Chart: Janell Genovese

Do-it-yourself credo governs IS at convenience store chain

BY GARRY RAY
CW STAFF

Take a ride through the Hoosier state of Indiana and you're likely to spot dozens of convenience store/gas station combinations that have sprouted in cornfields and cow pastures during the last decade.

Well past the chewing gum and newspaper stage, these stores now offer everything from chicken dinners to oil changes and fertilizer in order to woo and keep customers in an industry where profit margins look healthy at a bare 1% or 2% of sales.

Slim margins are nothing new to Marsh Village Pantry, a 173-store chain that is owned and operated by Marsh Supermarkets, Inc., a 60-year-old, billion-dollar firm that runs 83 grocery stores from its Indianapolis headquarters. Not surprisingly, the frugal Marsh is squeezing every last drop of profit from its Marsh Village convenience stores through a compelling mix of intelligent cost controls, insightful planning and a bevy of do-it-yourself information systems.

"Cost is the issue all of the time," said John Laboda, vice president of IS at Marsh.

A do-it-yourself credo is the core operating and cost-containment philosophy of John Wingate, the company's director of management information and communication systems. Speaking of his approach to IS planning and development, Wingate said, "We want to do it our way, so we can do it when we want to and change it when we want to change." At Marsh Village, turnkey systems vendors need not apply.

In keeping with that philosophy, Wingate has invested in a number of technologies that give the company inexpensive and flexible control over internal and store-based IS. Its pay telephones can be programmed and maintained from headquarters; cash registers interact with local, 286-based systems; an intricate data collection system automatically retrieves store accounting records and adds them to a consolidated accounts payable system.

Wingate's most recent creation is an invoice recording system that gives store managers an immediate sense of profitability mixes on incoming store deliveries.

Created using MicroStep, a visual programming tool from Austin, Texas-based Syscorp International, Inc., the Direct Store Delivery (DSD) invoicing system was designed to offload centralized data entry tasks, which previously required the efforts of 15 headquarters staffers, to local store managers.

Beneficial side effects

Even though managers are now picking up the job of entering 30 to 40 invoices per week into the system, Wingate said, they get a corresponding benefit. As they enter invoices into the store-based systems running the DSD application, "they get retail pricing and gross profit," he said. "It has eliminated a lot of work. Most of them like it."

Previously, managers calculated these figures manually and had little ability to play "what if" with vendor deliveries.

Marsh's headquarters also gets the immediate benefit of timely accounts payable information. Using the Atlanta-based Xcellenet, Inc.'s RemoteWare Communications Management System, DSD invoicing files are automatically collected on a twice-weekly basis from each of the stores and integrated into the company's central accounting system.

Once done, the Marsh accounting department compares invoices against a centralized master file of vendor prices. Variances between the master pricing file and invoices are immediately flagged for review.

In keeping with his philosophy that "I always buy with the idea that I want to do the development," Wingate purchased MicroStep after looking at a number of convenience store packages that cost in excess of $120,000. The $1,895 MicroStep allowed Wingate, who is not a professional programmer, to create a similar application in two weeks, he said.

At last report, Wingate was working on another MicroStep application that will allow the Marsh Village marketing department to create convenience store menu items by tapping into the centralized pricing database and working on a cost basis for all ingredients.

Satisfied that his low-cost, do-it-yourself approach is reaping rewards, Wingate said, "Everybody who has expertise on staff can do what we have done, and they can do it themselves."

ON SITE

Donuts

village pantry

Marsh Village Pantry
Indianapolis

- **Challenge:** To deliver a DSD invoice-entry application to more than 175 Marsh Village Pantry convenience stores, providing store managers with timely profitability measures and corporate offices with accounts payable information.
- **Technology:** Syscorp International's MicroStep, a visual application development system; Xcellent's Remoteware Communications Management System; store-based 286 PCs.
- **Impact:** Two-week turnaround on DSD application; store managers have more useful supplier information; corporate offices reduced invoice-entry tasks and gained better cost controls.

Oracle, Cadre Technologies form strategic relationship

BY JEAN S. BOZMAN
CW STAFF

Some users of Oracle Corp.'s relational database management system see their IBM mainframes' IMS files as a large island of data stranded in a hierarchical, nonrelational database.

Until last month, users had no Oracle computer-aided software engineering (CASE) tools to reverse-engineer data from nonrelational sources such as IMS and have sometimes left 20-year-old IMS systems running in parallel with newer Oracle-based systems.

"It's been a bit of a problem," noted Ian Fisher, vice president of Oracle's worldwide CASE marketing. "We could retrofit definitions of data held in Oracle databases, but many Oracle applications were built without CASE."

To provide reverse-engineering tools to such users, Oracle recently announced a strategic relationship with Cadre Technologies, Inc. in Beaverton, Ore.

By December, Cadre will ship a version of its DB Designer CASE tool that can build models of IMS data inside Oracle's CASE Dictionary. The Oracle data dictionary/repository can be linked to other Oracle CASE tools to generate new applications.

Based on automated analysis, DB Designer 3.1 creates CASE entity relationship diagrams to recycle IMS data.

"It determines what the relationships are between the IMS data records," said Andy Mahon, a senior analyst at New Science Associates, Inc. in Randolph, Mass. "You use [the contents of] the existing IMS database to aid the process of designing Oracle database systems and applications."

One longtime Oracle user said the reverse-engineering approach could speed the conversion of aging IMS data.

"Some people have converted data from IMS to Oracle, but it tends to be a fairly large undertaking," said Dale Lowery, president of Oracle User Resource, a Washington, D.C.-based consortium of Oracle user groups.

Some conversion methods have forced thousands of rows of IMS data into oversized Oracle data tables, then sliced large chunks of that data into smaller tables, Lowery said.

Cadre's bottom-up design approach compares with Bachman Information Systems, Inc.'s IBM-compatible CASE tools for IMS, analysts said.

Varied access

DB Designer can access other flat-file sources, such as IBM's VSAM, Digital Equipment Corp.'s RMS and Computer Associates International, Inc.'s IDMS.

Prices for Unix workstation versions of DB Designer Release 3.1 start at $20,000.

Cadre and Oracle will jointly develop more Oracle links to hierarchical databases. But future DB Designer releases will also target Unix database products that compete with the Oracle RDBMS, Cadre said.

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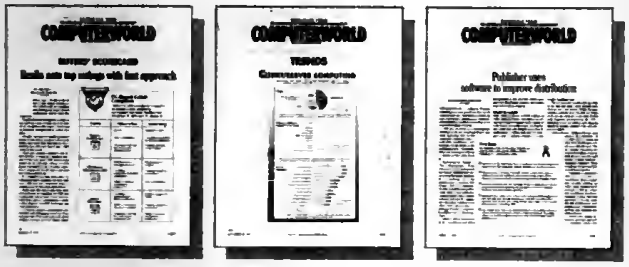

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Information resource manager now shipping

PALM HARBOR, Fla. — M. Bryce & Associates has begun shipping the Pride Information Factory, an information resource manager that works in concert with IBM's AD/Cycle and a variety of computer-aided software engineering tools and methodologies.

According to company officials, the Information Factory includes a project management system that maintains project guidelines, calendars and schedules.

It also includes three information engineering modules comprising enterprise engineering, systems engineering and database engineering.

Specifications and designs from all modules are stored and maintained in a proprietary information resource manager.

The product, which runs on IBM's OS/2 2.0, costs $15,000 for an initial license fee.

Individual copies of the software are priced at $25,000 to $5,000 per copy, depending on quantity, according to the company.

GARRY RAY

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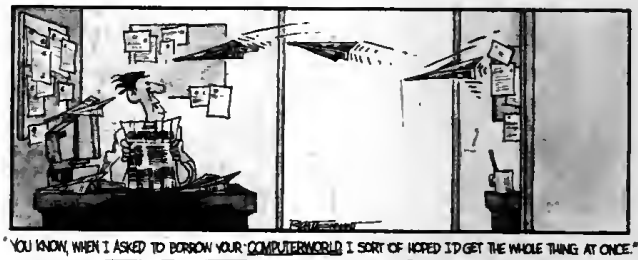

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In, out or both?

As downsizing roars on, companies grapple with the best ways of keeping LANs and PCs in tip-top shape. Surprise: Outsourcing may be waning.

Katherine Lambert

Colonial Williamsburg's Bell: *Hopes to save $40K this year on IS budget by bringing increasingly important PC LAN support in-house*

BY DANIEL LYONS

Visitors who come to Colonial Williamsburg to enjoy the historic architecture, the period costumes and the world's largest folk art collection will never notice the change.

But the information systems department that services the restored section of this historic Virginia city is trying a new approach to keeping its personal computers and local-area networks humming smoothly.

Until last year, The Colonial Williamsburg Foundation relied on outside vendors to maintain its 450 PCs and five LANs. Outsourcing freed staffers to concentrate on running the IBM Application System/400 minicomputers that support the museums, hotels, restaurants and shops in the 160-acre historic district.

But then Jim Bell, the foundation's director of IS, decided to switch from outsourcing PC and LAN services back to in-house support.

A big reason, according to Bell, was that internal IS support was cheaper than hiring an outsider. Bell, who says the benefits of outsourcing are exaggerated, expects to trim $40,000 from his PC LAN budget this year by handling maintenance in-house.

But he says there's another, more important motive: "The networks are going to be with us for a while, so we want to be able to rely on ourselves," he explains. "It's the heartbeat of the company. You have to have some control."

Lyons is an Ann Arbor, Mich.-based free-lance writer.

What? Voluntarily take over the headache-filled business of servicing the organization's spiderweb of LANs and desktop computers? Is he crazy? If so, Bell will have more company than you'd think.

According to consultants, more and more IS chiefs are willingly assuming PC and LAN upkeep chores and reducing reliance on service vendors, outsourcers and other third-party providers.

A recent survey by Dataquest/Ledgeway, a Framingham, Mass.-based market research firm, showed that nearly three-quarters of the IS chiefs polled would like to greatly increase the number of networking tasks done in-house, especially maintenance, installation, wiring, training and diagnostics (see chart page 70). Anecdotal evidence also supports this finding.

What's underlying this surprising trend? According to IS managers and consultants, it is the belief that PCs and LANs are not high-tech weeds but rather vital corporate backbones that deserve the best care available.

As a result, many IS heads are willing to endure pains — including retraining staff, fighting turf battles with departmental LAN gurus and deciding whether to outsource part, all or none of the PC and LAN maintenance — to protect the family desktop jewels.

"Sure, the average Joe can go out and buy a network and plug it in, and it goes," Bell says. "But it's much more strategic than that. There are security issues, for example. That's where IS folks can bring the level of expertise to the implementation, and that's why it needs to be in-house."

Still struggling

Despite the growing desire to self-maintain, consultants say many large organizations are still thrashing about for the best way to service the growing tangle of networked desktop devices.

Companies "really haven't converged on a right or even a good answer," says Janet Hyland, director of network strategy research at Forrester Research, Inc., a Cambridge, Mass., market research firm. "You see everything from departmental users struggling to do the maintenance themselves right up to having the corporate IS function chartered to do that."

Unfortunately, IS departments that tackle the job may find themselves caught between two

Continued on page 70

Maintenance

KEY POINTS

▶More IS departments are taking on PC and LAN maintenance in hopes of gaining greater control of downsized systems.

▶Most IS chiefs polled by Dataquest/Ledgeway say they would prefer to handle more network maintenance, installation, wiring, training and diagnostics in-house.

▶A recent antitrust ruling favoring third-party service providers is the latest wave to hit the maintenance market. See story page 71.

▶IS managers considering buying third-party services are advised to use multiple vendors, look beyond low bidders and drive a hard bargain. See story page 72.

▶User stories: Subaru, Home Mutual Life, Black & Decker, Land O' Lakes, Colonial Williamsburg, William B. Reilly, Texas Department of Information Resources, American Overseas Book. Stories begin this page.

QUOTABLE:

"The whole maintenance industry is in a state of transition and revolution."

Donald Blumberg
D.F. Blumberg

Firms struggle to keep LANs and PCs in shape

CONTINUED FROM PAGE 69

conflicting pressures, according to Jeffrey Kaplan, a director at Dataquest/Ledgeway. On one hand, Kaplan says, firms are decentralizing processing power companywide. This would suggest that departments take care of their own LANs and PCs, he says.

Yet many firms are also aggressively trying to unite small LANs and PCs into enterprisewide webs, which calls for more central control and IS involvement, Kaplan notes.

As a result, many IS chiefs are employing a mix of outsourcing and do-it-yourself maintenance for PCs and LANs, with a growing preference for the latter. Dataquest/Ledgeway predicts that spending on outside maintenance and in-house personnel will both rise this year, to 15.2% and 28.9% of the total IS budget, respectively.

"We see a split," Kaplan says. "Despite the fact that outsourcing is getting a lot of attention — and there is more interest in it than ever — there remains a silent majority who are more interested in retaining control."

Tricky times ahead

But consultants and IS managers warn that new or even experienced do-it-yourselfers may be in for some unexpectedly tricky times.

For starters, they note that PCs and LANs are often harder to maintain than mainframes and minicomputers. Fewer systems management tools are available, devices tend to be widely scattered and standards are still evolving.

Then there are the end users, some of whom take a very active interest in their LANs. "It's difficult to keep things on an even keel when the users are mucking around," Forrester Research's Hyland says.

The cost advantages of self-maintaining vs. outsourcing LAN support are also less than clear. Few of the IS heads interviewed could or would provide hard numbers for money saved by handling their own LAN upkeep chores.

Outsourcing vendors are quick to point out the difficulties in comparing in-house service costs vs. farming out LAN maintenance. Internal programs, they say, are rife with hidden costs.

"It's not just the cost of hardware or the cost of putting two or three people on site to manage the networks," says Juan Cardona, program manager for LAN and workstation services at Bell Atlantic Business Systems Services, an outsourcing vendor.

He says the true cost includes such things as keeping up with upgrades for every product on the PC network, restocking inventories and educating IS staff.

"Just the cost of retraining is huge," Cardona says, citing a study by Meta Group, Inc. that fixes the cost of providing PC and LAN support at $750 to $1,000 per user per year.

Benefits — and costs

Still, The Colonial Williamsburg Foundation's Bell and others are sold on handling PC and LAN upkeep in-house. Besides the cost savings, Bell says he believes he's getting better service than he did from the local computer store chain (which he declines to name) that previously handled the chores.

"When someone on staff goes out to fix a printer, generally they do preventive maintenance, too, so the equipment tends to stay healthier longer," he says.

Of course, taking over the work also has its costs in dollars and staff time. For example, rather than hiring outside PC experts, Bell is simply retraining and redeploying the foundation's IS staff members.

For instance, a former information center staff member now oversees PC and LAN maintenance, and former programmers are being trained as Certified NetWare Engineers who will eventually work as LAN administrators.

In fact, Bell is so confident in the approach that the team will oversee the company's next big project: linking the

Networking ins and outs

IS chiefs want to handle more networking tasks internally while farming out disaster and construction work to vendors, outsourcers or third-party providers

Survey of 250 IS directors

Networking jobs IS wants to do in-house . . .	(Percent of respondents) Current	Future
Installation and ongoing maintenance	52%	74%
Management tools and diagnostics	50%	72%
Wiring and cabling	53%	65%
Support, education and training	40%	63%

. . . and what it wants to outsource	Current	Future
Disaster recovery planning	18%	34%
Network center planning and construction	16%	30%

Source: Dataquest/Ledgeway

Subaru of America driven to outsource support

Not everyone is clamoring to dump outsourcing for the less-than-fun task of maintaining downsized systems.

Earlier this year, Subaru of America, Inc. in Cherry Hill, N.J., outsourced nearly all of its computer operations, including personal computer and local-area network support, to Unisys Corp. in a seven-year deal worth $45 million.

Unisys took responsibilty for running Subaru's two Unisys mainframes, two Wang Laboratories, Inc. minicomputers and Digital Equipment Corp. workstations, as well as training, running the help desk and maintaining approximately 600 PCs at headquarters and regional offices and 2,000 workstations in 650 U.S. dealerships, according to John Piccone, Subaru's director of business information systems.

Piccone says the deal has freed Subaru's 70 IS staffers from mundane chores such as hardware maintenance and data center operation and has allowed them to focus instead on strategic business concerns and application development.

Steve Hill

Subaru's Piccone: *Unloading nonstrategic tasks*

At the same time, the company, a subsidiary of Fuji Heavy Industries Ltd., has been able to reduce its total IS budget by more than 15%, Piccone says. Some 28 of the department's staffers now work for Unisys at Subaru's Pennsauken, N.J.-based data center.

It's obvious but crucial when forming an outsourcing deal, Piccone says, that both sides establish which tasks they will handle. His advice: Define acceptable service levels, and develop a barometer for monitoring them.

"You should spend as much time as possible beforehand specifying policies and procedures," he advises.

DANIEL LYONS

Insurer comes full circle

Howard Brenner, executive vice president at Home Mutual Life Insurance Co., has been around the in-house vs. outsourcing LAN maintenance block a couple of times and is back where he started.

The Baltimore company downsized several years ago, replacing a 1970s-era Honeywell Bull, Inc. 2060 mainframe with 66 PCs connected on a handful of Artisoft, Inc. LANtastic LANs.

After relying on outside maintenance from the technical support department of a local PC supplier and a few computer vendors, then hiring an internal PC expert, Brenner is moving back to outsourcing.

He now says money can be saved by contracting an outside vendor while also pushing more of the load for service and support onto users.

Brenner has narrowed the search to two companies. But rather than simply buying time and materials contracts or paying a fixed price, he plans to buy 250 hours or so of support time at $55 to $90 per hour.

Even more important than saving money, he says, is competence and freedom from having to assemble hardware. Brenner says he hopes to free three IS staffers from the chore so they can be available to provide more user direction and support.

To choose the winner, the company has hired two finalists to do small jobs, such as upgrading a server. The best performer will get the pact, Brenner says.

"It's wonderful having a support person on staff, but the problem is that people tend to lean on that individual to solve problems that they could solve themselves," Brenner says. "Now everyone is going to have to do a little more before they call somebody."

DANIEL LYONS

LANs onto a backbone with the AS/400s.

Richard Lusky, director of IS at William B. Reilly & Co., a coffee and food manufacturer and distributor in New Orleans, is also sold on the idea of handling PC and LAN maintenance in-house.

His department took over the upkeep of LANs after the departments that controlled them had trouble with two outsourcing vendors. One did a good job, but the other was lousy, according to Lusky, who declines to name either.

The user department "tried outsourcing and doing it on their own," he says. "When they were faced with difficulties getting good maintenance on a timely basis, they looked to us."

Lusky also looked for outside help and hired a PC LAN expert to bring the existing Novell, Inc. NetWare LANs up to snuff and develop a prototype LAN based on IBM's LAN Server. Besides helping IS test the new technology, the project will also give IS staffers needed hands-on experience with LANs.

"They're learning on the job," Lusky says. He says he hopes staffers will eventually become conversant with PC technology and see the LAN as an extension of the company's IBM 4381 mainframe.

Mixed approaches

Of course, some companies are discovering that self-maintenance of downsized systems is more trouble than it's worth and are turning back to outside providers (see stories page 70).

To hedge their bets, many companies, such as Black & Decker Corp. in Towson, Md., are opting in the meantime for a mix of in-house and outsourced LAN service.

For assembly and burn-in of new equipment, training of end users and a software help line, for example, Black & Decker turns to an outside provider.

For breakdowns, the company's in-house IS staff handles about 70% to 80% of maintenance calls, says Sid Diamond, former vice president of worldwide information services. "The remaining ones, the extensive problems, we funnel to the outside organization" — a local Computerland Corp. affiliate, Diamond says.

Many of Black & Decker's 6,000 PCs worldwide are linked to IBM, Amdahl Corp, and Hitachi Data Systems Corp. mainframes, as well as IBM AS/400s, Digital Equipment Corp. VAXs and Novell NetWare networks, which are maintained through vendor service contracts.

But Diamond says it makes more sense to outsource the PC work. "In terms of time and costs and people issues, it's more efficient for us to do it that way," he explains.

Similarly, Land O' Lakes, Inc. in Arden Hills, Minn., uses a mix of outsourced and in-house expertise.

In the past, the dairy products maker had handled most of its PC and LAN support internally, says Mark Wilberts, vice president of IS.

Now it outsources PC hardware maintenance and is considering doing the same with training. But all other PC and LAN service is strictly internal.

Farming out hardware upkeep makes sense, according to Wilberts, because Land O' Lakes, as well as its PC support, is decentralized, with more than 200 locations around the country. The company uses a mix of IBM mainframe (3084Q), midrange (AS/400) and Novell NetWare LAN technologies, and each of the primary business units has its own development and support staff.

"We're not opposed to using outsourcing for other services," Wilberts acknowledges, "but we have not found a cost-effective solution that can meet our needs."

Selective service

Even those companies that are adamantly self-reliant don't rule out the use of outsiders.

At Colonial Williamsburg, Bell still brings in consultants on occasion, especially for network design. "We don't know all the answers," he says, "and of course we always want fresh input."

It's also clear, Bell adds, that different parts of the business are better suited to outsourcing than others. "When you're talking about more dynamic things, ways that help you make money, then you need internal expertise. You have to have more access." •

Experts say big shakeups creating 'a user's market'

BY DENISE WORHACH

The service industry's fun has just begun. And that's good news for information systems managers buying maintenance, according to industry insiders.

A major antitrust ruling by the U.S. Supreme Court last month fueled an ongoing struggle between independent maintenance firms and big-name computer manufacturers such as IBM, Digital Equipment Corp., Hewlett-Packard Co. and Unisys Corp. [CW, June 15].

With the ruling, the nation's top court challenged the widespread practice of computer makers bundling spare parts for service contracts. Some independent service providers had argued that bundling effectively blocked them from getting spare parts.

"The whole maintenance industry is in a state of transition and revolution," says services market analyst Donald Blumberg at D. F. Blumberg and Associates, Inc. in Fort Washington, Pa. "Right now, it's a user's market."

The court's decision is expected to unleash numerous lawsuits, which could ultimately benefit third-party firms eager to grab a bigger slice of the lucrative maintenance business.

Pays to be flexible

In a sector already shaken up by new services, tailor-made programs, more flexible contracts and a rise in self-maintenance by companies, computer manufacturers and independent providers alike are bending over backwards to find or keep business.

"Vendors are becoming flexible in order to succeed," says analyst Marnie Phillips, manager of the service trends program at Dataquest/Ledgeway, a Framingham, Mass., research firm.

In many cases, IS managers can virtually write their own maintenance deals, Phillips says. Little is sacred.

IBM, for example, recently separated service pricing from product price at the Texas Department of Information Resources. Debra Williams, director of planning, says the departure from traditional practice allows her agency to compare prices from different vendors.

Buyers can now also choose among options ranging from a postwarranty repair to full site management. Two- and four-hour critical repair is also becoming more popular.

Behind the shakeups is the desire of makers and independents to grab a bigger piece of the lucrative service and parts business, which Dataquest/Ledgeway pegged at more than $103.1 billion worldwide last year.

Heavily eyed are areas such as network integration (growing at a compound annual rate of 22% and expected to reach $13.7 billion in 1996), network support, software support, data communications, telecommunications and personal computer service.

DEC, IBM, Unisys and other big makers account for about 84% of all service revenue. The rest goes to third-party maintainers, dealers and resellers.

IBM continues to rule the field, earning $12.4 billion in service revenue for 1990, according to Dataquest/Ledgeway. DEC follows, earning $4.8 billion (see chart). More recent figures are unavailable.

How they stack up

Computer and communications vendors account for nearly 90% of the maintenance service market

1990 worldwide service revenue (in millions)

1. IBM	$12,[illegible]
2. DEC	$4,707
3. Xerox	$4,160
4. Unisys	$3,861
5. HP	$3,663
6. NCR	$2,610
7. Siemens/Nixdorf	$1,830
8. Groupe Bull	$1,684
9. AT&T	$1,622
10. Olivetti	$1,378

Total market: $68.2 B

Source: Dataquest/Ledgeway

James Seitz, assistant general manager of maintenance at IBM, says at least part of this success comes from the firm's ongoing plan to service non-IBM equipment.

To keep competitive, many large vendors are focusing on high-growth markets. Unisys, for instance, is targeting desktop users, says Bob Wilson, director of marketing. The Blue Bell, Pa., firm has also been promoting its prompt response capabilities as well as a pioneering exchange program that lets users swap faulty units with refurbished equipment.

Bell Atlantic Corp., the largest third-party manufacturer, is focusing on networking, says Juan Cardona, program manager of local-area network workstation services.

Bell Atlantic is among the firms betting that information systems managers will continue to blend in-house and outsourced services. "We try to complement in-house services," Cardona says.

Pressures from giants have prompted smaller vendors to devise some creative solutions. For instance, Dell Computer Corp. arranges its service agreements through BancTec Service Corp. in Dallas. Compaq Computer Corp. contracts with Bell Atlantic to provide service for its products.

Troubled third parties

Despite the new arrangements, some third parties are feeling the pinch. For example, San Antonio-based Intelogic Trace, Inc. is $25 million in debt.

Blumberg says some weaker independents are ripe for takeover by larger competitors. He notes the recent purchase of TRW, Inc.'s $110 million service arm by Computerland. Combined revenues exceed $400 million.

Although the recent Supreme Court ruling is expected to give a big boost to independent providers, no one seems too certain what the next big service trend will be.

For now, analysts say, IS managers should take advantage of a competitive service marketplace.

"If you can't get what you want, ask," Phillips says. "If you still can't get what you want, go elsewhere." •

Worhach is an Austin, Texas-based free-lance writer specializing in business and technology issues.

Get yourself a good deal

The following is a 12-step program, culled from expert advice, to help you find your best maintenance solution.

- Define and develop a comprehensive list of service requirements.
- Determine and rank the urgency of each application and the risk of exposure.
- Advertise your service needs.
- Open the bidding process to as many competitors as possible.
- Consolidate your service contracts when possible.
- Steer away from proprietary maintenance on proprietary equipment.
- Carefully compare costs, conversions and capabilities.
- Negotiate with current or prospective providers, but avoid lowballers.
- Consider maintaining your own low-end equipment that has a low failure rate.
- Look at total life cycle costs when purchasing new or old equipment.
- Give a preference to those vendors dedicated to your industry.
- Review your maintenance decision as often as is warranted.

DENISE WORHACH

Getting quick fix on best way to buy maintenance

Debra Williams
Texas Department of Information Resources

▸ Don't put all your eggs in one basket.

Debra Williams faces a challenge as big as Texas — literally.

The Lone Star State boasts $1 billion worth of telecommunications and data processing hardware in 225 agencies, with sites in cities from El Paso to Houston.

As director of planning for the Texas Department of Information Resources, Williams is looking for ways to end waste, gain economies of scale and ensure system security.

With annual personal computer maintenance contracts running $500 on a $1,000 system, according to Williams, cost-cutting opportunities are abundant.

In hopes of getting the best deal, the agency is opening maintenance contracts to several competitors. The tactic was used successfully for systems acquisition, according to Williams, who's betting it will work with service, too.

Williams is dead set against relying on a single source to maintain critical applications. Having several vendors under contract, she says, helps ease administration, saves money and guarantees reliability.

The latter is especially important, according to Williams, for institutions such as state medical centers, law enforcement, criminal justice and any application that affects public health and safety.

Like many of her peers, Williams says she will probably use a combination of internal and several external servicers.

.....

Janet Hyland
Forrester Research, Inc.

▸ First gain user trust.

"Plenty of departmental folks brought in LANs because MIS wasn't responsive to them in the first place," Hyland says.

"There's a real feeling that MIS has their head in the sand and has never been responsive," she adds. "So why should I hand this responsibility to them?"

But as long as IS is willing and able to do the work, departments generally will turn the task over to them, Hyland says.

"Usually, departments want responsibility for LAN management until the first time they have a big server crash, and then they want the corporation to fix it," she says.

.....

Hale Gaffney
American Overseas Book Co.

▸ Don't shop price.

When his IBM 3600 disk crashed last month, Hale Gaffney considered himself lucky it happened at 5 p.m. on a Friday.

"We were able to get ourselves up and running by Monday morning," says Gaffney, president of American Overseas Book in Norwood, N.J.

Gaffney credits the company's maintenance provider, Intelogic Trace, Inc. in San Antonio, with the speedy re-creation of lost files used by the 25-terminal midrange system.

Interestingly, when the $11 million bookseller put out its maintenance contract three years ago, Intelogic was not the low bidder.

However, at that time, Gaffney had judged that the Texas company would be better prepared than the other unnamed bidders to handle a sudden disaster. He says his decision has proved undeniably correct.

"Put price last on your list of considerations," he advises. "If you're up, you can do business. The minute you're down, you're out."

.....

Marnie Phillips
Dataquest/Ledgeway

▸ Be tough.

Phillips' research firm recently polled maintenance vendors about profit margins. The industry average was close to 40%.

The clear message, according to Phillips, is simply this: "There's room to negotiate."

.....

Donald Blumberg
D. F. Blumberg & Associates, Inc.

▸ Know what you want and say so clearly.

According to Blumberg, information systems departments need to follow the basics by first defining and articulating service needs, including voice and communications equipment.

Next, he says, "Publicize those needs." Any bids forthcoming can be used as leverage against a current or prospective provider, whether in-house or outsourced, Blumberg explains.

Then, according to Blumberg, it's time for IS to tell each vendor, "Sharpen your pencil and let's talk." Once a decision is made, he advises re-examining the situation every three to six months.

DENISE WORHACH

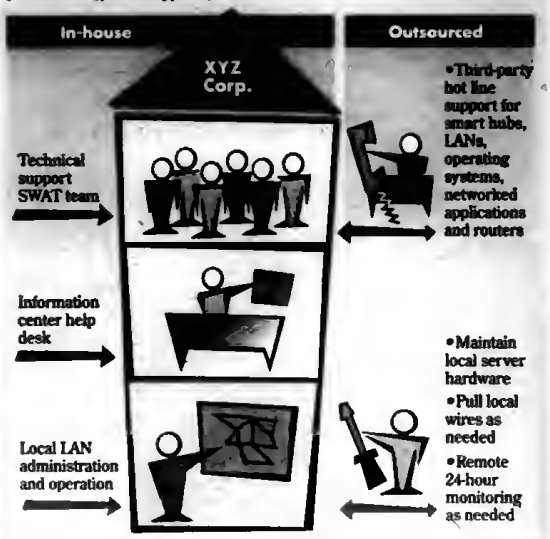
Will Van Overbeek

Williams: *dead set against having the Texas Department of Information Resources rely on a single source to maintain critical applications*

Try this three-step model for successful LAN support

How to split up LAN upkeep

Fortune 1,000 firms are advised to use a mix of internal and external help for the most effective support of LANs



Source: Forrester Research, Inc.

Many companies are opting for a mix of internal and outsourced support for their local-area networks. However, a large number of information systems managers may not be certain which tasks to keep in-house and which to farm out.

Forrester Research, Inc. has designed a three-tier "LAN Support Model" for Fortune 1,000 companies. The model goes as follows, from the bottom up:

- **Level 1: Local LAN administration and operation.** This LAN support can be handled by nontechnical personnel who have been trained in the network operating system.
- **Level 2: Information center help desk.** Staff members here should learn enough LAN technology to be able to answer simple questions because end-user naivete is a leading LAN problem.

Help desk staff members should also be able to tell which problems need to be investigated further.

- **Level 3: Technical support SWAT team.** MIS should retrain some personnel and deploy them into LAN and internetworking.

These people should receive vendor training, such as that offered by Novell, Inc.'s Certified NetWare Engineer program.

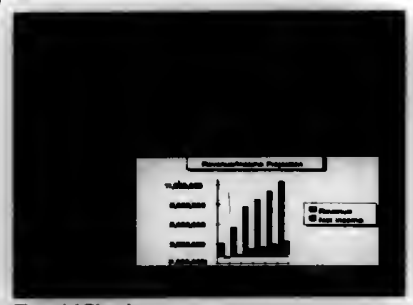
These personnel should also learn to use remote diagnosis and management tools to keep tabs on faraway LANs.

DENISE WORHACH

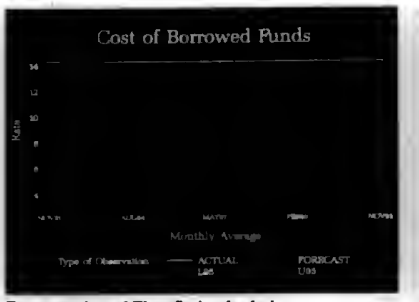
Where are you headed with your applications development?

BACHMAN Model Driven Development puts you on the right course for more successful software product [illegible]

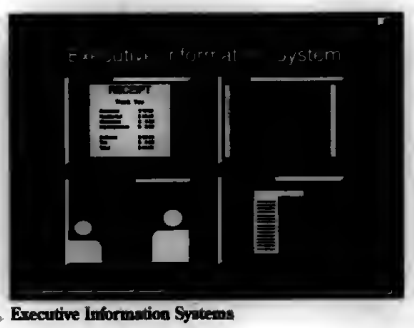
BACHMAN



Financial Planning



Econometric and Time Series Analysis



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Profile: Jim Manzi

Out for a little respect, Lotus' chief may need Notes' success to silence critics attacking his management style and the company's one-product reputation

John Owen

BY GLENN RIFKIN

For a man who claims to have once required "two weeks on lithium" in order to give a speech, Jim Manzi has finally found comfort under the spotlight. As evidenced by his cross-dressing, crowd-pleasing, Aretha Franklin strut (replete with shoulder-length wig and gold-sequined miniskirt) at Lotus Development Corp.'s 10th birthday party celebration in June, Manzi has overcome his stage fright.

But was it mere coincidence that he chose Aretha's signature rhythm and blues classic *Respect* to lip sync for the 15,000 amazed partygoers at the Boston Garden that night?

For Manzi, respect from within the personal computer software industry has been in short supply during much of his nine-year tenure at Lotus, first as the company's president and then as its chairman and chief executive officer. Despite having overseen Lotus' growth from $156 million to $1 billion in revenue during that time, Manzi, 40, has spent more time fending off critics and sparring with the likes of Microsoft Corp.'s Bill Gates and Borland International, Inc.'s Philippe Kahn than he has accepting accolades. He may, in fact, be the most beleaguered success story in the computer industry.

Controversy has been Manzi's constant companion. Delays in 1-2-3 software follow-ons as well as development snafus and missed market opportunities related to the spreadsheet's Windows version have deflected attention from Lotus' growth.

His steely intelligence and biting sense of humor (some call him arrogant) have done little to endear him to analysts and reporters who cover Lotus.

"He has a weird sense of humor that a lot of people don't get," says Esther Dyson, editor of "Release 1.0," an industry newsletter. "For a while, he didn't understand how seriously people took this stuff."

And he had the hubris to assume that a nontechnical former journalist and McKinsey & Co. consultant could compete on the hallowed PC playing fields against such genius technologists as Gates and Kahn. In an industry in which the ability to write code or speak fluent C++ determines membership in the club, Manzi is perceived as an outsider, someone who can't truly "talk the talk" or "walk the walk."

So there will be great irony if Manzi's Notes strategy, on which he is clearly betting the future of Lotus, pays off — as some analysts believe it will (see story page 76). Besides filling Lotus' coffers, success with Notes may finally elevate Manzi in the cynical eyes of the industry.

The early road

Son of a Yonkers, N.Y., dentist, Manzi was a Colgate University classics major who took a circuitous route to Lotus. He helped William F. Buckley write a book on the United Nations in 1974 and worked as a journalist at Gannett Co. for three years before entering graduate school at Tufts University near Boston.

Soured on the invasive nature of journalism after being asked to interview the parents of a suicide victim, he applied to McKinsey in 1979 to try his hand at consulting.

Roger Kline, his boss at McKinsey, remembers that Manzi was not cut from the stereotypical McKinsey cloth. "He was not the tall, establishment-looking type we generally hired," Kline says. "He was a wily, intense, street-smart guy who smoked. Plus, he didn't have a business school background."

Continued on page 76

> Being selected by *Fortune* magazine in 1989 as one of the toughest bosses in America: "That's the most appalling thing that's happened to me since I've been at Lotus — to be selected next to some guy who was quoted as saying, 'I really know how to chew ass, and I like it.' It's repulsive."

Rifkin is a free-lance writer based in Sudbury, Mass.

Continued from page 75

Despite being atypical, Manzi flourished at McKinsey because of his analytical prowess and was well on his way to becoming a partner.

Then in 1982, McKinsey sent Manzi to the newborn Lotus to help Mitch Kapor make sense of the intricacies of starting and running a business. Manzi, only 31, was hooked by the excitement of the start-up and joined Lotus in 1983, just as the company began shipping its groundbreaking product. The company sold $53 million worth of 1-2-3 the first year. "Back then, we were hanging on to a meteor," Manzi says. He became president of Lotus in 1984.

Lead with iron fist

During his time at Lotus, Manzi has garnered a reputation as an impatient boss who brooks no fools and will intimidate employees with a baleful stare or cutting remark. However, those close to Manzi are pained by characterizations that paint him as arrogant and aloof.

Janet Axelrod, a former Lotus vice president who joined the company as its second employee, has remained close to Manzi despite politically opposite points of view. A confirmed liberal, she counts the conservative Manzi among her closest friends.

"Jim's public reputation is so far from what he is that it's a joke," Axelrod says. "He's a thoughtful, caring person. He is obsessively private, and he's just unwilling to prostrate himself to the press." But the criticism, she says, has hurt.

"If he was truly the bastard he's painted as being, he wouldn't give a damn," she says. "But this doesn't roll off his back."

Axelrod points out that despite their political differences, Manzi has "absolutely protected" all the philanthropy programs she put in place, such as an on-site day-care center and the donation of 1% of pretax profits for charitable contributions every year.

Manzi, who calls "obscene" his own sizable total compensation — which rose to an eye-popping $25 million in 1987 — personally donates huge sums of money to charitable and social institutions but is reluctant to discuss his private affairs. He recently donated $50,000 to a South Boston center for new mothers and $250,000 to Colgate (where he is a trustee) to endow a scholarship for children in Boston.

Those close to Manzi say his hard-edged reputation was born when he took on the role of "bad cop" for Kapor.

Manzi says Kapor was "genetically incapable of saying no to people, so I took on that role. I had to deliver a lot of bad news to people."

Kapor, who left Lotus in 1986, says he didn't hire Manzi to be the bad guy, but "in retrospect, that was certainly one of the reasons. I had trouble making tough business decisions, especially if I perceived they were hurtful to individuals. Jim was able to take a more businesslike view of the whole situation.

"There was some good cop/bad cop synergy, though I felt Jim really got the worst of the deal," Kapor adds. "People undercredited him and overcredited me. On the other hand, he never shared the kind of passion for the technology that I have. That made it difficult sometimes."

Despite his six years away from Lotus, Kapor's legend still pervades the halls of Lotus. Kapor's renowned Hawaiian shirts and easygoing humor made him a sharp contrast to the intense Manzi. Says one longtime employee: "Mitch was like a big teddy bear; you'd follow him anywhere. Jim is not a huggable kind of guy."

Former employees such as Heidi Sinclair, who served as vice president of corporate communications for three years and is now at archrival Borland, acknowledge that Manzi is very intelligent and a decent person. But, Sinclair says, he has one fatal flaw: "He's a very poor manager of people. He doesn't create an environment where people are empowered to do what they need to do."

Ed Belove, former vice president of corporate research and development, adds that Manzi was particularly uncomfortable with developers. "He's not a product person," Belove says. "It doesn't matter if you are technical or not. What matters is that senior managers should be really excited about the products and what they do. Jim is not someone who turns on a PC and uses the products; it's not fun for him."

Jeffrey Tarter, publisher of "Softletter" newsletter in Watertown, Mass., is a strong Manzi supporter who says he believes Lotus' Notes is positioned to become the next 1-2-3. "I'm a fan of his, but I also see he has encouraged some of the

Lotus' Notes: The Manzi mission

Manzi is banking on his workgroup software to pick up where 1-2-3 left off

Talk to Jim Manzi and you can expect to hear about Notes early in the conversation. He speaks about Lotus' workgroup platform and communications software product with a rare passion — perhaps because he is betting the company's future on it.

Using Notes as the foundation, Lotus is selling a suite of products, including its cash cow 1-2-3 spreadsheet, along with electronic mail, word processing and graphics software.

Manzi says he believes so fervently in this strategy that he will brook no internal obstacles to its success. Those who don't get on board, like former Senior Vice Presidents Frank King and Stephen Crummey, are left behind. Lotus has already invested nearly $100 million in Notes.

"This is the first time Jim has had new product fever," says David Readerman, an analyst at Shearson Lehman Brothers, Inc. "He is crusading for Notes like Philippe and Gates have always done for their products."

Making the Notes strategy pay off won't be easy for Lotus and will require a sea change within the corporate culture. Old distribution channels must be discarded in favor of a new model, which Lotus must invent for itself. The selling cycle for Notes is long and arduous because the product, which retails for $495, can't be sold individually as 1-2-3 is. Unless an entire company or, at minimum, division or business unit embraces Notes, the software is useless.

But Notes is clearly picking up momentum and starting to draw rave notices. IBM recently adopted Notes and CC:Mail as its local-area network products of choice. Neither Microsoft nor Borland are said to have anything close, and even Manzi's toughest critics express admiration for Notes. But the jury is still out on its success; Notes currently makes up only 4% of Lotus' revenue.

What would make the success of Notes especially sweet for Manzi is that the strategy is clearly his, and a win may be just the thing to pull him out from under the imposing shadow of Mitch Kapor, Lotus' founder and co-creator of 1-2-3, who left in 1986.

Critics such as industry watcher Stewart Alsop contend that Manzi has ridden the broad back of Lotus 1-2-3, a product with such unprecedented momentum and stamina that it was impossible to derail.

Manzi, the critics point out, couldn't screw up the insatiable appetite for 1-2-3, even as Lotus mishandled several follow-on introductions of the software. Some say Manzi's lack of technical skills hampers his ability to find synergy and harmony with his internal development teams.

"Jim has been a victim of the development organization," says one analyst who requested anonymity. "The R&D guys will [b— s—] you and squander millions if you don't set out for them tight timetables and a vision of where they need to go. For that, you need a very strong technical visionary. Jim has not provided that vision."

In the past three years, pressure has been building on Manzi and Lotus as Microsoft and Borland mounted a broadside attack on Lotus' once sacrosanct spreadsheet market. Even amid the euphoria of Lotus' birthday celebration, Manzi is shadowed by a rapid decline in spreadsheet market share — from 82% in revenue in 1989 to 55% in 1991, according to Goldman, Sachs & Co.

With Microsoft's Excel 4.0 receiving marquee reviews and Borland readying its Quattro Pro for Windows to ship in August, analysts worry that more and more customers will be wooed away from Lotus. "The No. 1 vendor seems to be playing perpetual catch-up in its own market," says Richard Sherlund, an analyst at Goldman, Sachs.

Manzi dismisses the criticism, claiming Lotus has a 65% market share in spreadsheet revenue, including 90% of the DOS market and 100% of the OS/2 and Unix markets. He acknowledges, however, that there is a "head-on" battle in the Windows arena.

That head-on battle has already left some scars on the company, which announced recently that this quarter's revenue would likely be $10 million less than what Wall Street had been expecting, partly because of slow growth in the Windows spreadsheet market [CW, June 29]. The week the announcement came out, Lotus shares dropped $7.50 to $17.75 per share.

Manzi insists that Lotus' future is not solely dependent on 1-2-3, adding that Notes sales are encouraging. "I have a very deep-seated belief that what we have been building for the last three or four years is dead on for the next three to five years," he says.

How Chairman Jim sees it:

- the collapse of the proposed Lotus/Novell merger: "I haven't looked back on it. I was upset it broke up at the time. But we didn't change our strategy because of it."
- Mitch Kapor's departure from Lotus: "I underestimated the impact of his leaving, not so much from a line-management perspective but the gaping hole that existed in development and the impact of the founder leaving the company. I wasn't smart enough to understand that."
- personal feuds with Bill Gates and Philippe Kahn: "The industry is, in an awful way, personality-driven. I find that infantile and immature at best. I never wanted to be a party to that, nor do I relish the entertainment biz."
- his relationship with Lotus employees: "You ask anybody here: The easiest person to see in the company is me."
- recent layoffs, the first in the company's history: "Downsizing was the hardest thing I had to do in nine years here. That's a management failure."

worst tendencies at Lotus," Tarter says. "People get very risk-averse, nervous about their jobs, overstudy things, shoot down ideas that weren't invented there. Ironically, Jim is both a visionary and a person who doesn't encourage visionary behavior in his own company."

Tarter says Manzi is known to be particularly tough on his executives. "The inner circle is expected to perform at incredibly high levels," he says. "You don't win your way into that circle and rest on your laurels. If you fail, you're out."

Robert Weiler, senior vice president of sales and marketing, says Manzi is extremely demanding of his executives but is also very loyal. He describes how painful it was this past December when Manzi had to dismiss Frank King, the former IBM executive who had turned around Lotus' sagging development team just three years earlier.

"Jim got physically ill," Weiler says. "He wasn't sleeping, and it was really hard for him. He just believed the changes had to be made."

> "PEOPLE UNDERCREDITED [Manzi] and overcredited me."
>
> MITCH KAPOR
> LOTUS FOUNDER

Frank Ingari, who left Lotus in 1990 after disagreements with King and was persuaded by Manzi to return as vice president of marketing this year, says his boss' tough reputation is not without foundation.

"Nine days out of 10, Jim is supportive, funny and charming, but that 10th time, if he is in a bad mood or hot on an issue, he can be very intimidating," Ingari says. "He can turn his intelligence on you."

Ingari says that under those circumstances, Manzi "loves for you to push back. The wrong way to survive is to be intimidated on that 10th day."

Manzi acknowledges that he is "a fairly demanding guy. I'm straightforward. I attempt to be fairly clear about what I'm looking for and what constitutes goodness."

He says he never raises his voice and acknowledges that people can interpret things he says differently from what he intends. "I have to guard against that," he says. Manzi also says that he underestimated both the technical and emotional impact of Kapor's departure from Lotus.

But Manzi seems to pay little heed to his critics. In January, when Stewart Alsop, an industry watcher, published an open letter in a newsletter calling on Manzi to step down for the good of Lotus, Manzi simply did not respond.

"I got more supporting letters and notes and E-mail after that came out than at any time in my being here," Manzi says. "Stewart is an ardent and passionate defender of single users of PCs. My concern has always been and will be computing within an organizational context, which is where the real promise is."

Manzi says that he has, since the letter, run into Alsop.

"He asked me what I thought of his letter," Manzi recounts. "My primary thought was that I'm always impressed by how many people in the world think it's their job to give me advice." ●

How Chairman Jim sees it:

Q Mitch Kapor's desire to replace 1-2-3 with Symphony: "When Symphony was being developed, Mitchell thought it was the replacement product for 1-2-3. So we disagreed about that. It was hard to imagine while we were selling tens of millions of dollars of 1-2-3 that you'd want to derail that phenomenon. Fortunately we didn't. That was about $1.5 billion ago in terms of revenue."

Q his lucrative compensation as Lotus chairman: "It's obscene. The level is obscene and embarrassing. But it's on paper. It's stock. It's widely known that I haven't sold any stock other than to pay taxes. I get s-t from the guy who does my taxes for not diversifying enough because 99% of my net worth is in the company. He thinks I'm nuts."

Q discovering that Lotus was quietly doing business in South Africa despite the company's official policy against such dealings: "We found out that the person running our international operations had approved doing business in South Africa. He winked and said it was OK even though it violated everything this company has stood for in business. We questioned him about it, and he changed his story, so we fired him on the spot. We had no knowledge of what was happening and certainly didn't endorse it."

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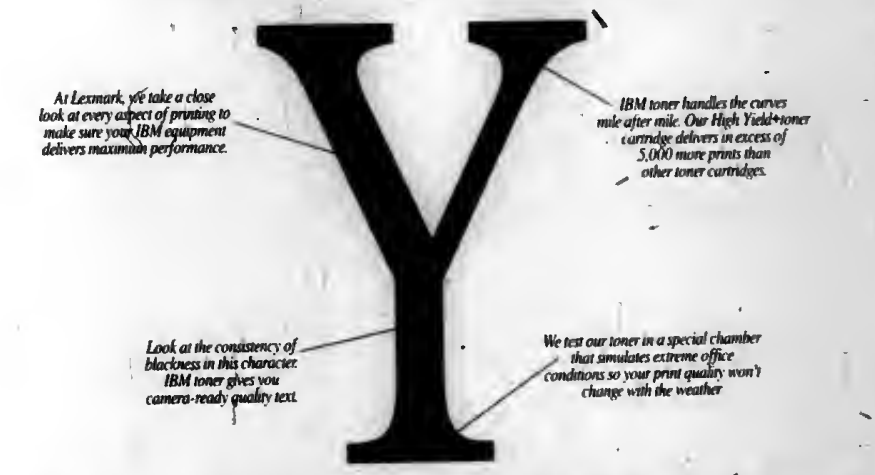

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Transaction cements market dominance of two leading knowledge base system vendors and sets stage for entry into broader application development market

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Our new company will continue to develop, sell and maintain a broad suite of product solutions, including our two industry-leading knowledge base system products, KBMS® and the Aion® Development System, as well as INTELLECT™, a natural language data access tool. By leveraging our combined technical skills and resources in object orientation, client/server environments, graphical user interfaces, data access and platform portability, we will provide our customers the application development tools and services required to build and sustain productive business applications.

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MANAGER'S JOURNAL

THE CEO VIEW

Rocketing to top with back-to-basics approach

Rockwell CEO endorses customer focus, employee communication and getting workers closely involved

Donald M. Beall hates to waste time. That shows in his clipped speech, his get-down-to-basics corporate and civic creed and his rocket rise at Rockwell International Corp. The small-town son of a small businessman kicked off his career at the aerospace giant by turning around the firm's foundering electronics business. He went on to turn around a recently acquired radio company. He changed the entire company from a vulnerable government contractor into a healthily diversified commercial manufacturer — a multinational player whose 83,400 employees do business at some 443 plants in 48 states and 26 foreign countries. At the age of 49, he became the youngest chief executive officer in the company's history.

Early this month, Beall spoke with *Computerworld* Senior Editor Nell Margolis on information technology as an enabler of corporate expansion and customer service — and the CEO's role in driving it.

■

ROCKWELL IS HEAVILY involved in the use of advanced data processing — not only in running the administrative functions, which is something every company does, but in every aspect of what we do. So many of our products are so software-intensive these days that having the most advanced technology available and familiar to us is pretty much a given.

That's true when we're talking about 10 new gun-stops with massive, Ada-programmed on-board controllers that we're providing to the U.S. Navy. You'd expect it to be. But it's also true in the case of the door-latches that our Allen-Bradley [industrial automation] business is manufacturing in Birmingham, England, where we've launched a new, highly computerized assembly line.

Also at Allen-Bradley, we've got a system called Passport that serves as an example of [IS] directly at the service of customers. This is an inquiry system whereby customers located anywhere in the world can check in electronically at any time and find out whether we've got a part, where it is, how much it costs and how they can get it without having to talk to a single person. Many plants have similar tie-ins.

And take our plant in Gifhorn, Germany. That's in Northeast Germany, not far from Wolfsburg — which is the world headquarters of Volkswagen, one of our customers. Because this is a highly automated plant, with just-in-time inventory and electronic communications going back and forth between our plant and the VW headquarters all the time, it only takes us 134 minutes after getting an order to complete and ship an entire roof set for a specific Volkswagen vehicle — and we make more than 3,000 a day.

■

My own personal opinion is that there aren't any limits [inherent in] the technology itself; the problems come in the way it's been used. Most companies — and I'm not talking just about Rockwell, I'm talking about companies in general — have spent the last decade getting overstaffed, overbureaucratized and noncompetitive. And this goes for their [deployment] of technology as well as everything else: Most are using technology but managing it in a lousy way.

■

There's no magic formula. It's just a matter of getting back to basics: focusing on customers, communicating with employees, making sure employees are involved heavily in the process. Communicate very effectively. Take every opportunity to challenge the status quo. Really, I'm just talking about fundamentals. This isn't an original thought — but it's a fact.

In our kind of business, the various company divisions have to work very closely, because tight coordination is a big part of the product. Recently, we put a system on-line by which all our businesses share supplier information. And this is also an example of how information systems can be used to involve employees in the process: The idea for the [supplier information coordination] was developed jointly by procurement [staffers] and [IS] staffers working together.

■

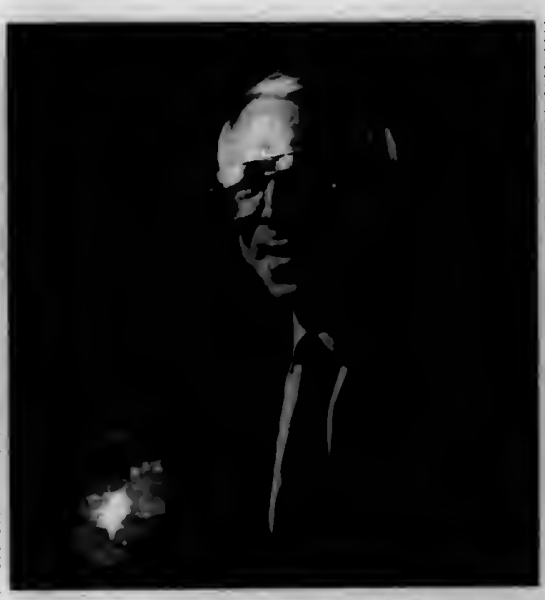
Because of the nature of the businesses we're in — automotives, avionics, graphics — we've been exposed early to very aggressive international competition, and we've benefited from it. We had to adopt what some people call progressive management approaches, not because we're so smart, but because anything less and we wouldn't have met the competition.

Total Quality Management, or whatever buzzword they're using these days? That's been absorbed into daily life at Rockwell, and for one reason — because there was no other choice. Go into our plant in Laurinburg, N.C., where we're producing transmissions: Every person is cross-trained on every single job. There's minimal supervision. There's gain-sharing. But that's a far cry from how we operated some time ago; we were hurried into it by the pressure of competing with companies and countries that took it for granted.

Look — essentially, every facsimile machine in the world is made in Japan. Each of them has a Rockwell motor. It took a lot of our skills in digital signal processing to be able to make that statement — but it also took our ability to have products delivered with the timeliness, and demonstrating the quality, that our Japanese partners won't do without. Winning in that important market is one hell of a powerful motivator.

I see my role as that of a cheerleader and a catalyst. To the extent that the company sees that I think certain

Continued on page 81



The CEO: *Donald M. Beall, 53; bachelor's degree (metallurgical engineering), San Jose State College, 1960; master's degree cum laude, University of Pittsburgh, 1961.*

The career: *Chairman and CEO of Rockwell International Corp., 1988-present. President and chief operating officer, 1979-88. Corporate executive vice president, 1977-79. Director since 1978. Joined Rockwell in 1968 as executive director of finance. Became executive vice president of Electronics Group a year later. Following firm's initial investment in Collins Radio Co., was named executive vice president, then president, of that unit, 1971-1976. Named president of electronics operations in 1976. Prior to joining Rockwell, was associated with Ford Motor Co., 1961-68.*

Accomplishments: *Spearheaded and presided over Rockwell's transition from a defense contractor to a highly diversified, highly profitable $12 billion vendor of products from space shuttles to truck axles to printing presses.*

INSIDE

▶ Hughes Aircraft plans to cut 9,000 workers worldwide during the next 18 months. Page 80.

▶ Calendar. Page 81.

EXECUTIVE TRACK

Hubert P. Clarke, vice president and director of the information systems division at Ridgefield Park, N.J.-based **UJB Financial Service Corp.**, has been promoted to senior vice president and director of the firm's technical services division.

In his new position, Clarke, who joined UJB in 1968 as a computer operator and has risen steadily through the IS ranks, is responsible for the development and maintenance of voice and data communications, capacity planning, equipment acquisition and leasing, as well as all technical services.

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The board of directors of Washington, D.C.-based **Greater Southeast Healthcare System** recently appointed **Kenneth F. Johnson** vice president of planning and IS.

Prior to joining Greater Southeast, Johnson — a 30-year veteran of both the accounting and health care industries — owned and operated Strategic Healthcare System, Inc.

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Fort Wayne, Ind.-based **Lincoln Financial Corp.** recently promoted its director of operations and data processing, **Larry A. Shoff**. A recent arrival at Lincoln Financial, Shoff — who was formerly employed at NCOT Systems Corp., an IS consulting firm in Sylvania, Ohio — now wears the title of first vice president.

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The Federal Reserve Bank of New York has a new assistant vice president. **Gerald Hayden**, a 30-year New York Fed veteran who had been manager of the general computer operations department since 1987, was recently promoted to the higher rank and assigned to the IS area with responsibility for the contingency operations, quality assurance and general computer operations departments.

Upcoming cuts turn up heat under Hughes

BY NELL MARGOLIS
CW STAFF

LOS ANGELES — Early this year, when Michael Armstrong walked out of a senior executive's office at IBM to become chief executive officer of Hughes Aircraft Corp., the executive long seen as IBM Chairman John Akers' likely successor said he did not want to wait until mid-decade to find out what it was like to run a company.

He is finding out some of the harder parts up front — and facing them in true Blue fashion. Late last month, Armstrong took a leaf straight from Akers' book and cut back his firm's work force to position for a hopeful spring forward in a troubled market once the economy rebounds.

Hughes' plan to cut 9,000 jobs worldwide — approximately 15% of its current work force — and carry out "a major facilities consolidation" over the next 18 months aims at streamlining the company for action during a persistently slow economy and in the face of potentially "severe program cutbacks" in its largest market: federal defense.

However, the move also ratchets up the pressure on Hughes' fledgling Systems Sector to prove itself the growth catalyst and market differentiator that it was conceived to be.

The Systems Sector made its debut in April. It combines seven Hughes operations into a part business unit that includes the company's full information systems complement: Reston, Va.-based Hughes Information Technology Co., Lanham, Md.-based Hughes SCX and the former IS division of the Space and Communications Group.

Under the stewardship of former Radar Systems Group head John Weaver, now Systems Sector president, the IS forces have been lashed together with Hughes' Weapon Systems, Command and Control and Advanced Traffic Management Systems Groups to give the struggling defense contractor a shot in the marketing arm: the ability to act as a designer, developer and systems integrator on huge, mission-critical projects, both military and commercial.

In the latter category the sector is currently leveraging its expertise in integrating mammoth defense projects to develop a software guidance system tailored to run airports.

A company spokesman said last week that he doubted the impending layoffs and consolidation will take a heavy toll in the Systems Sector.

> THE MOVE RATCHETS up the pressure on Hughes' fledgling Systems Sector to prove itself the growth catalyst and market differentiator that it was conceived to be.

"You have to think that, in most cases, it will be defense areas that will be hit the hardest," he speculated. "That's where the weakness is."

The Systems Sector, on the other hand, "is considered one of the most promising growth areas," he said. The spokesman noted that Weaver's appointment to the sector's top spot came with an appointment to Hughes' office of the chairman.

In fact, the spokesman's speculation gained support from the company's official statement that "most of the layoffs will be in Southern California, which houses more than two-thirds of the company's current 60,000 work force." Thus the IS contingent's East Coast address could confer a modicum of safety.

However, the spokesman added, no final decisions as to locale have been made. What has been decided is that the estimated 9,000 employees to be laid off will receive a special supplemental benefits package, which will also be extended retroactively to the 3,000 or so Hughes employees who have been laid off this year.

The costs of the coming downsizing, prominently including the special benefits, triggered a $749.4 million after-tax charge against Hughes' second-quarter 1992 earnings.

INTELLIGENCE FILES

Items of interest from publications, speeches, surveys and research projects

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A training 'quickie'

■ One chief executive officer's critical test for a successful information system: "It should take no longer than three hours of training for users to become proficient — not five or six days in a classroom," said Roger Schipke, chairman, president and CEO of Ryland Group, Inc. in Columbia, Md.

Source: *Remarks at the Lattanze Center's CEO/CIO Roundtable in Baltimore, June 10, 1992.*

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Store 'n' save

■ With the price of machinery to write data onto compact disc/read-only memory (CD-ROM) dropping to under $6,000, many more corporations are able to cost-justify the investment. Eastman Kodak Co., for example, began shipping inventory data on CD-ROM instead of downloading it over phone lines and turned a $100,000 investment into a $1 million yearly savings. And Ford Motor Co. replaced the vast paper catalogs it was sending to dealers with CDs and saved on printing and mailing costs.

Source: *"CD-ROM: The Next PC Revolution," by Mark Alpert,* Fortune, *June 29, 1992.*

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Low man on the totem pole

■ In a recent Ernst & Young survey showing the base salaries of managers as a percentage of the CEO's salary, the top execs in IS came out at the bottom of the heap. The survey showed that while chief operating officers at companies with annual sales of less than $50 million bring in 73% of the CEO's base salary and top marketing and sales executives take home 58% of the CEO's earnings, top systems and data processing managers earn only 39% of the CEO's pay.

Source: *"Benchmark — Top Execs' Paychecks,"* Inc., *July 1992.*

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The data disease

■ Demand for data increases to meet data processing capacity, according to author Ross K. Baker. This phenomenon has brought on a new social ill that be terms "dataholism" — the result of researchers obsessed with finding and publishing meaningless statistics giving us more information than we could possibly use.

For example, taxis are now equipped with dashboard computers that spit out reams of information on pick-up and drop-off times, odometer readings, elapsed time between pick-up and drop-off, the fare, the tax, the tip — right down to the license plate on the cab. Baker was convinced that dataholism was rampant when he checked into a hotel room and found it took a computer to operate the shower.

Source: *"Dataholics Anonymous," by Ross K. Baker,* American Demographics, *July 1992.*

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The food-to-cow linkup

■ Scientists at Pennsylvania State University have developed a computer program designed to link livestock owners with waste food — products such as pizza, pretzels, chocolate and canned veggies no longer fresh enough to be in stores. The computer program calculates the lowest cost ration plan for the animals and displays a map that shows where particular foods are and how much it would cost to transport the items.

Source: *"Sending Leftover Pizzas Down to the Farm,"* Business Week, *June 22, 1992.*

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Let's face it, MIT

■ If MIT's Media Lab has anything to do with it, it won't be long before computers can "recognize" people, an ability that may have application in security devices. MIT researchers are exploring machines that can recall images on command. "You'd be able to say, 'Are there any pictures of George Bush in here?' and the computer would look through and pull up all the pictures," said Alex Pentland at MIT. "At the moment, there's no way to have the computer look into a picture and see what it contains. We want to build a picture processor that's just like a word processor."

Source: *"Face Space,"* Discover, *August 1992.*

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Efficient or effective?

■ What's the difference between efficiency and effectiveness? According to Dr. James C. Wetherbe, director of the Management Information Systems Research Center at the University of Minnesota's Carlson School of Management, "efficiency has to do with your resources and how well they are used. Computers are generally regarded as tools of efficiency. Effectiveness is how well you can satisfy your customers, and often people don't realize the impact information technology can have on this part of the business equation."

Wetherbe sees efficiency as a by-product of effectiveness. "If you use information systems for effectiveness, you become efficient in the process because of the economy of technology. In that sense, you can have your cake and eat it, too."

Source: *"If You're Not Fixing It, You May Go Broke,"* Beyond Computing, *May/June 1992.*

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Compiled by Kelly E. Dwyer, assistant editor, features, with contributions from Mitch Betts, national correspondent, and Paul Gillin, executive editor.

CALENDAR

JULY 19-25

Comnet. San Francisco, July 20-23 — Contact: Matt Mandino, World Expo Corp., Framingham, Mass. (800) 225-4698.

Object World '92. San Francisco, July 20-23 — Contact: Lynn Fullerton, World Expo Corp., Framingham, Mass. (800) 225-4698.

APICS '92. Chicago, July 22-23 — Contact: APICS Meeting Registration, Falls Church, Va. (703) 237-8344.

Memory Expo '92. Santa Clara, Calif., July 21-23 — Contact: Memory Expo '92, Englewood, Colo. (303) 220-0600.

QuarkXPress Users Conference (QUI). New York, July 22-23 — Contact: QUI, Salem, N.H. (603) 898-2822.

JULY 26-AUG. 1

Siggraph. Chicago, July 26-31 — Contact: Siggraph Information Hotline, Chicago, Ill. (312) 321-6830.

The Managing Enterprise Networks Conference. Boston, July 27-29 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Gigabit Networks. Washington, D.C., July 28-29 — Contact: Wilma Hurwitz, Technology Transfer Institute, Santa Monica, Calif. (310) 394-8305.

PC/Canada. Toronto, July 28-30 — Contact: The Interface Group, Needham, Mass. (617) 449-8938.

Color Connections 4. Boston, July 30-Aug. 1 — Contact: Graphic Communications Association, Alexandria, Va. (703) 519-8162.

AUG. 2-8

International Gupta Developers Conference. San Francisco, Aug. 2-5 — Contact: Gupta Travel Headquarters, San Francisco, Calif. (415) 445-8813.

GroupWare '92 Conference & Exposition. San Jose, Calif., Aug. 3-5 — Contact: The Conference Group, Scottsdale, Calif. (602) 661-1260.

Tools USA '92 (Technology of Object-Oriented Languages and Systems). Santa Barbara, Calif., Aug. 3-6 — Contact: Burghardt Tenderich, Tools Conferences, Santa Barbara, Calif. (805) 685-1006.

Fed Micro '92. Washington, D.C., Aug. 5-6 — Contact: Sylvia Griffiths, National Trade Productions, Inc., Alexandria, Va. (703) 683-8500

Fose CD-ROM and Multimedia Conference & Exposition. Washington, D.C., Aug. 5-6 — Contact: Sylvia Griffiths, National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

Professional Engineers Examination Conference. Indianapolis, Aug. 5-8 — Contact: Institute of Industrial Engineers, Norcross, Ga. (404) 449-0460.

AUG. 9-15

Apple Enterprise Computing Conference. Boston, Aug. 12-14 — Contact: Emilio Robles, Apple Computer, Inc., Cupertino, Calif. (408) 862-5671.

AUG. 16-22

Sigcomm '92. Baltimore, Aug. 17-20 — Contact: SRI International, Menlo Park, Calif. (415) 326-6200.

Windows & OS/2 Conference. Boston, Aug. 19-21 — Contact: CM Ventures, Inc., Emeryville, Calif. (510) 601-5000.

AUG. 23-29

Interex Users Conference. New Orleans, Aug. 23-27 — Contact: Michelle Pettigrew, Interex, Sunnyvale, Calif. (408) 738-4848.

SynOptics User Group Conference. Washington, D.C., Aug. 24-26 — Contact: Dennis Farr, SynOptics User Group, Santa Clara, Calif. (408) 988-2400.

Marketing the IS Organization Internally. Columbus, Ohio, Aug. 25 — Contact: The Ouellette & Associates Registrar, Bedford, N.H. (603) 623-7373.

Auto-Tech. Detroit, Aug. 25-27 — Contact: Automotive Industry Action Group, Southfield, Mich. (313) 358-3570.

Downsizing Expo. San Francisco, Aug. 25-27 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Cohesion Conference. Boston, Aug. 26-28 — Contact: Stephanie Vickers, BIS Strategic Decisions, Norwell, Mass. (617) 878-6650.

Computerfest '92. Dayton, Ohio, Aug. 29-30 — Contact: Mark Hanslip, DMA Computerfest, Dayton, Ohio (513) 263-3378.

AUG. 30-SEPT. 5

Primavera Systems, Inc.'s Ninth Annual User Conference. Philadelphia, Aug. 30-Sept. 3 — Contact: Primavera Systems, Inc., Bala Cynwyd, Pa. (215) 660-5830.

Surface Mount International Conference. San Jose, Calif., Aug. 30-Sept. 3 — Contact: SMTA, Edina, Minn. (612) 920-7682.

International Training Conference & Exposition. Anaheim, Calif., Aug. 31-Sept. 2 — Contact: Russell F. McKinnon, Trade Associates, Inc., Rockville, Md. (301) 468-3210.

The Sixth Annual Strategic Issues Conference and Client Forum. La Jolla, Calif., Sept. 3-Oct. 2 — Contact: Computer Intelligence, Farmington, Conn. (203) 676-2200.

SEPT. 6-12

Rocky Mountain Computer Conference and Exposition. Denver, Sept. 8-10 — Contact: National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

SEPT. 20-26

Image World. New York, Sept. 21-25 — Contact: Benita Rosmann, Knowledge Industry Publications, Inc., White Plains, N.Y. (914) 328-9157.

Virtual Reality '92. Westport, Conn., Sept. 23-25 — Contact: Meckler Conference Management, Westport, Conn. (203) 226-6967.

SEPT. 27-OCT. 3

Sensors Expo's Seventh Conference. Chicago, Sept. 29-Oct. 1 — Contact: Expocon Management Associates, Inc., Trumbull, Conn. (203) 374-1411.

CASE World Conference & Exhibition. Boston, Sept. 30-Oct. 2 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

CD-ROM Expo '92. Boston, Sept. 30-Oct. 2 — Contact: Mitch Hall Associates, Dedham, Mass. (617) 361-2001.

Software Publishers Association Annual Conference (SPA). Washington, D.C., Sept. 30-Oct. 3 — Contact: SPA, Washington, D.C. (202) 452-1600.

Graph Expo East '92. New York, Oct. 3-6 — Contact: Graphic Arts Show Co., Reston, Va. (703) 264-7200.

OCT. 4-10

The New Tools for Design and Design Production Conference. New York, Oct. 4-6 — Contact: The Center for Computer Graphics for Design, Santa Fe, N.M. (505) 986-0523.

Electronic Data Interchange Association (EDIA) Annual Conference. Nashville, Oct. 5-8 — Contact: Gregory Harter or William Myers, EDIA, Alexandria, Va. (703) 838-8042.

Beall: Rocketing to the top

CONTINUED FROM PAGE 79

goals and means of attaining them are important, then they will become important to the company.

■

Will business and economic changes over the next few years dictate the need for a new kind of CIO? I think that's true today. The IS leader has to feel that he's part of the top management team. That means he has to be a part of that team, which in turn means understanding the business of every business division. As far as having that kind of cross-fertilization at Rockwell — again, it isn't perfect here, but it's a lot better than it used to be.

Again, there isn't a silver bullet on how to improve — you keep the goal in mind and put one foot in front of the other. One good idea we've come up with is our management task force, a group that includes representatives from key staff positions from all businesses. Their mission is to feel very free to challenge everything we're doing.

The simple fact of their existence sends a powerful message to the rest of the company. You don't set up a group to challenge the company if you aren't open to hearing and acting on the suggestions they make.

■

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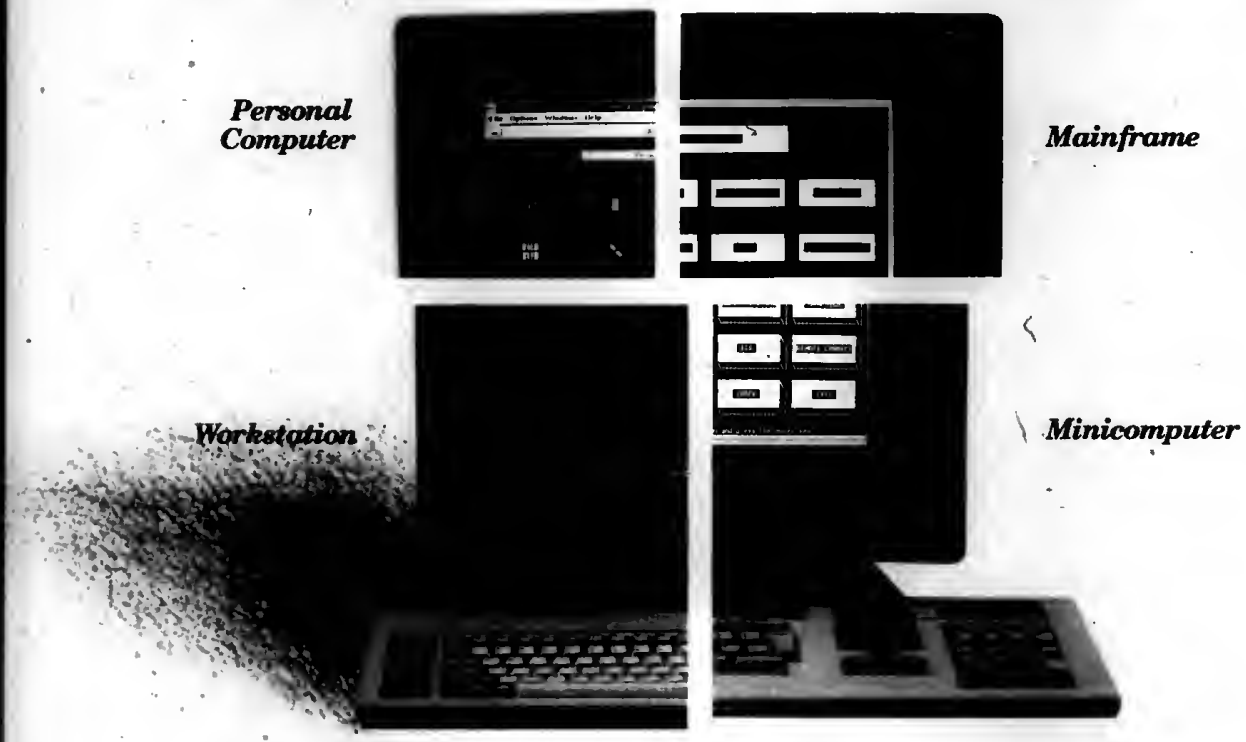

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IS personnel seek best of both worlds

On and off the job, a growing number of computer professionals pursue entrepreneurial dreams

BY SALLY CUSACK
SPECIAL TO CW

You've always dreamed of being your own boss but don't want to lose the paycheck from your 9-to-5 job. Take heart — you can still fulfill your dreams by dabbling in outside work after hours or heading up a special "intrapreneurial" project at your current company.

Intrapreneurship takes many forms, from composing training documents to streamlining routine tasks. The most exciting examples are often found in new software development.

Consider John Sall, co-founder and senior vice president at SAS Institute, Inc., a large, privately held software company based io Cary, N.C. Sall wanted to develop a statistical software program for the Apple Computer, Inc. Macintosh after seeing several new software products at a trade show.

Realizing that his company's flagship product, the SAS System, would be inappropriate for the Macintosh environment, Sall set about developing his own company, called JMP, and statistical visualization software for the Apple system. The new product, also called JMP, grossed $1 million in its first year of release.

As a result, in addition to his positioo at SAS, Sall also works full time as the product developer at JMP, whose staff now includes

four full-time developers.

An environment that promotes free thinking and risk taking, like that at SAS, must exist for intrapreneurial innovation to take place, however.

Double duty

Industry observers say this type of double life may be on the upswing among information systems personnel at larger U.S. companies.

For instance, of the 1,000 members of the San Francisco-based Software Entrepreneurs' Forum (SEF), more than 50% of the group's members are professional programmers and technical people, says an SEF spokeswoman. She says that the SEF is no longer a "group of programmers with a dream"; instead, members are more actively pursuing entrepreneurial goals.

Most members are seeking to expand their entrepreneurial ambitions in the world of software and related services. The organization now includes individual developers from established companies, as well as people currently employed in marketing, advertising, public relations and other communications fields.

A recent survey of IS managers by research firm Francorp, Inc., an Olympia Fields, Ill.-based business research firm, found that of 88 respondents, nearly two-thirds say they have looked seriously into business ownership.

IS professionals with specializations in personal computers, networking skills and communications are actively getting into entrepreneurial and intrapreneurial ventures, according to Chuck Muller, a partner at Andersen, Jones & Muller, a Southfield, Mich.-based firm specializing in the recruitment of IS professionals. Muller says this is because it's easier for them to transfer their skills to small business and home business.

He adds, however, that he has not found this to be true among people with the typical IBM mainframe skills. Instead, he says he's noticed them to be more committed to their jobs.

In the Francorp survey, office technology consulting was named as the top supplemental career by nearly two-thirds of the managers polled. The survey also indicates that the entrepreneurial desire extends beyond the simple need to produce one's own software package.

Taking on clients outside the office can help both employees and larger employers, says Louise Rielly Sacco, director of the Consultants and Entrepreneurs special interest group of the Boston Computer Society. She estimates that 500 to 600 members of the 3,000-member group are corporate employees.

For example, a person assigned to a specific project might find his skills eroding after two or three years. "Consulting on the side allows people to learn new products and technology," Rielly Sacco says.

Finally, she adds, experimenting with an after-hours business is a good way to test the waters before plunging ahead with a self-run business.

For the fun of it

Sheer love of technology, not just the extra income, is behind many entrepreneurial ventures. Take Tom Casey, for example.

After putting in a 9- to 12-hour day as a senior application project specialist at New York Life Insurance Co., Casey usually goes out to provide at-home training to PC users.

Casey emphasizes that he has oo intention of leaving his job at the insurance company. In fact, he says his after-hours consulting business dovetails nicely with his daytime position because it brings to him the hands-on programming he sees less and less of during the day because of increasing management responsibilities.

"I'm involved more on management projects than programming," Casey explains, "and this really keeps my skills fine-tuned.

"But let's face it," he adds. "The real reason is that I just love working with the stuff."

Cusack is a free-lance writer based in Marston Mills, Mass.

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Fast Track is a twice-monthly column dedicated to answering questions on career directions. This week's guest adviser is Chuck Muller, a partner at Andersen, Jones & Muller, a Southfield, Mich.-based firm specializing in the recruitment of IS professionals.

Q My current position has been part programming, part systems management and part operations. Is programming experience any more or less important than systems management experience? I have an opportunity to move into an applications programming position elsewhere. Should I take it or continue to gain systems management experience here?

A You should assess where you would like your career to go in the next five years. Typically, the technical support and applications programming career paths are distinct and require different types of experience.

If you decide to pursue systems management in a VAX/VMS environment, it would be best to remain at your present position and solidify your experience. Programming skills may be useful but are usually not required for a systems manager position. Two years of experience should be enough to compete for a new position.

Q I am looking to broaden my skill set from my current database (IDMS) to a relational model (Oracle, DB2, Ingres). I would also like some exposure to other areas such as computer-aided software engineering, local-area networks and client/server. Any advice or industries to look at?

A Obtaining a position in an IDMS shop that has committed to moving toward the relational model is the most likely way for you to get relational database exposure and maintain your salary and title. The strongest industries right now for this are health care, manufacturing and temporary services. In making a transition from one software or hardware environment to another, it is critical to assess how the technical environment of a potential employer will affect your future marketability.

FAST TRACK
CAREER ADVICE FOR THE '90s

Q I was recently interviewed for a job as a programmer analyst and was asked what my salary requirements were. How can I answer this question in the future without harming my chances at getting the job?

A If you are asked about your current or previous salary, you should be honest. Be sure to note your total compensation package, including base salary, bonuses, overtime and vacation. You should also mention if you are expecting a raise or promotion within the next three months. Do not state an exact figure, but stress an interest in an career opportunity and that you would consider a "reasonable offer."

Q I worked my way up the ranks to a data administrator for a Fortune 500 company in 1983. I then joined the corporate software engineering training group. After that job, I ran a business providing training in structured analysis, real-time extensions and managing projects. I have consulted on projects during the analysis phase, and now I want to apply my skills and experience working on projects through to completion. Any suggestions on how to attract the attention of a company?

A First, target your resume to highlight skills that are applicable to a particular type of job rather than using a chronological resume. This will allow you to define the job "target." For career opportunities, start networking with your clients from the last five years. They will know your work and your knowledge base. Use them as sources of potential leads into other opportunities.

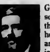
☞ *We want to hear from you. Call your career questions in using the Fast Track line at (508) 820-8522; send them via MCI Mail to KDWYER or send them by fax to Kelly E. Dwyer at (508) 875-8931. Letters may be edited for brevity and clarity. If we use your question, we'll send you a gift.*

TIP of the MONTH

How to succeed in working with the technophobic

Patience and persistence are important. Use a pilot program to show people how new technology will help them do their job better or more easily — then the reluctance goes away.

Kenneth A. Krallman, MIS manager
Carleton Technologies, Inc., Orchard Park, N.Y.

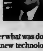


Give executives practical demonstrations that solve immediate problems. For example, if they want specific information but don't know how to access it, bring a laptop into their offices and show them how to get that information. Or install golf games to help reluctant users gain confidence.

William S. Murray, director of IS
Tribune Broadcasting Co., Chicago

We work with our people one-on-one to make sure we all keep pace with technology. People who hang on to old technology mistakenly think that their jobs are secure if they're the only ones who know how to do a particular task. In reality, they must accept new technology or risk having their jobs abolished.

Robert Hegedus, MIS director
Universal-Rundle Corp., New Castle, Pa.



Help people understand how a new system will be beneficial to them as individuals. If you show them how their own work will be made easier, they will go along with the program.

Jim Granier, senior vice president, corporate operations
First Commerce Corp., New Orleans

Don't permit people to dwell on the past and offer what was done before as a solution or as justification for why new technology won't work.

Bob Becksted, director of data processing
Time Customer Service, Inc., Tampa, Fla.

Compiled by Jill Vitiello, a free-lance writer based in East Brunswick, N.J.

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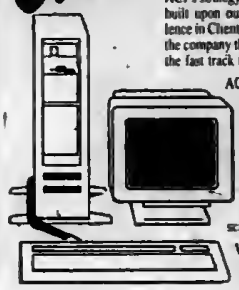

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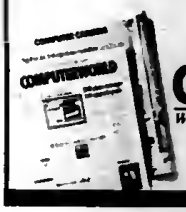

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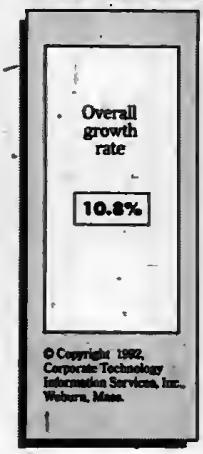

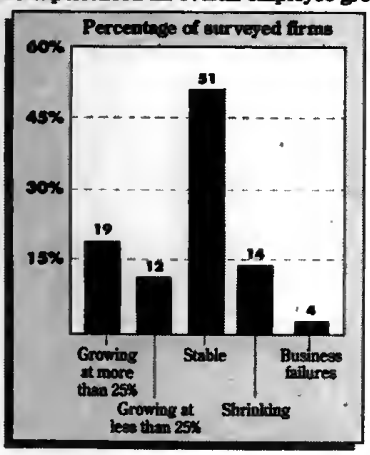

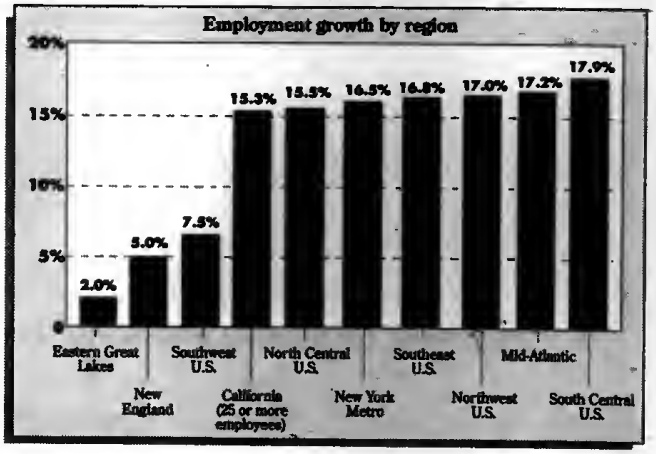

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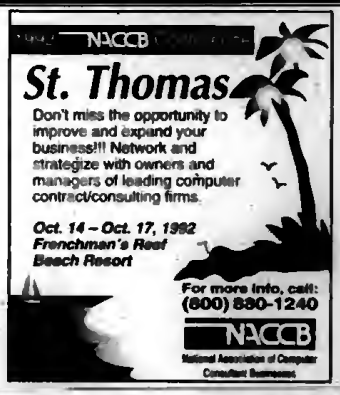

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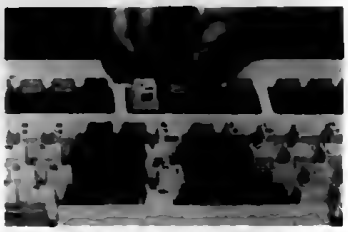

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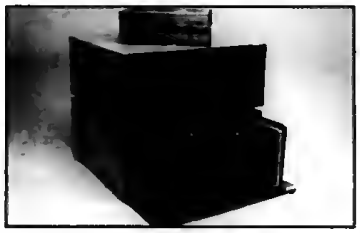

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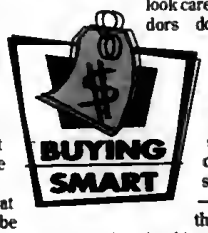
Want trade show bargains? Know where and when to look

BY ALICE BREDIN
SPECIAL TO CW

You step into a huge enclosed area. Lights are blinking, music is blaring and people are everywhere. Is this really the kind of place where you are likely to stumble across a great deal?

Veteran trade show attendees say yes. If you know where to look and how to sidestep the bogus discounts, rigged demos and hot air, these events are full of bargains.



The real deals at trade shows can be found on the last day of the event, especially later on in the day.

Hidden bargains

Vendors that don't want to haul products back to headquarters are eager to sell — discounts can reach 50%. But don't look for these bargains to be advertised. No one is going to post a "50% off" sign. But if you approach vendors, you might be able to get a deal.

"Fatigue sets in on the last day, and vendors want to get rid of products," says Pam Bybell, manager of user group support at the Boston Computer Society. So don't be afraid to haggle.

If you're not going to be around on the show's last day, a bargain you can get anytime is a special unit evaluation. A vendor may sell a $1,000 item at a 40% discount, but only if they think you'll buy more later on at full price.

If freebies are what you want, look carefully because vendors don't usually announce that they have things to give away. Instead, these items — usually software, add-in cards or other small peripherals — are tucked under the table. Getting them is a hit-or-miss proposition, however. The best approach to obtain freebies is to strike up conversations with vendors whose products interest you. You may end up walking away with something.

Don't be fooled into accepting crippled copies lacking the functionality of the full-blown product, though. Instead, trade show veterans suggest, try to get full-copy versions that are marked "not for resale."

But no matter how low a price you get, you don't have a bargain if you wind up with something that is less or different than what was advertised.

To avoid being taken in by a slick demonstration, you should always ask if the product that is running is the same as the product that will be shipped. If not, ask what the differences are.

"It's not typical, but some vendors might remove all the functions in a database update to make a product appear to run faster than it actually does," one trade show veteran says.

Hardware watch

The CPU running software at a trade show should also be questioned. You could be in for a shock if you see a product demonstrated on an Intel Corp. I486-based machine and you run it on an 80386-based system in your office. CPUs at shows are often under a table, so you must ask. The same goes for the hard disk.

Lastly, keep in mind that even though products look easy to use at a trade show, they may not be: Remember that vendors practice using the products every day.

"Don't get dazzled by the ease of a product in a demo," Bybell warns. "Keep your feet on the ground, and remember that all products have a learning curve."

Bredin is a free-lance writer based in New York.

Shop safely

One can never be too careful at a trade show. Despite your best efforts, falling prey to an unscrupulous vendor is easy. To come away unscathed, trade show veterans advise that attendees watch for the following traps and consider the safer alternatives.

➤**Trap: Overbuying.** "When you get to the show floor, it's crazy, noisy and loud — it's exciting," says Pam Bybell, manager of user group support at the Boston Computer Society. "A lot of people buy things and realize later they really don't need the 10 extra features they just paid for."
Safe solution: Identify what you need in the way of features before you start wandering the aisles. If you've already drawn up your shopping list, you won't be as apt to succumb to impulse.

➤**Trap: Buying sizzle.** "Vendors at shows will advertise software at 20% off the list price, but software is almost never sold at list price," explains Louise Sacco, a consultant at The Enterprise Group, a Needham, Mass.-based consortium of consultants.
Safe solution: Check prices at local dealers, discount stores and mail-order firms before buying. This may save you from being duped by a bogus discount.

➤**Trap: False starters.** Keep in mind that some products displayed at trade shows never hit the market, says Morris Herman, chairman of the Santa Barbara, Calif., Apple Computer, Inc. Macintosh user group. Herman, who works as a computer equipment adviser to Raytheon Co., recalls getting a beta-test copy of a very promising spreadsheet, but the product never came out. "You want to make sure you aren't recommending a product that won't appear," he warns.
Safe solution: To make sure the product can be counted on, check whether the company has the muscle and money behind it to deliver the product to market.

➤**Trap: Fly-by-night vendors.** "Some people get their hands on a bunch of no-name computers and sell them at a show, and they've never sold computers before or since," Sacco warns.
Safe solution: Ask how long the company has been in business. "You can also run out into the lobby and see if they are listed in the local yellow pages," Sacco suggests.

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PS/2 Model P70	$2,100	$3,000	$1,500
PS/2 Model 80	$1,500	$1,800	$1,100
PS/2 Model 95	$4,800	$5,000	$4,000
Compaq Portable II	$425	$500	$375
Portable III	$550	$650	$250
Portable 386	$1,300	$1,800	$1,000
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Planned Editorial Features:
(subject to revision)

- Companies where computer career students want to work. And their top choices for: Information Systems, Engineering, Sales & Marketing, Technical Support, Research & Development.
- Information Systems salaries from Computerworld's annual survey with the Data Processing Management Association.
- And much more!

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COMPUTERWORLD

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STOCK TRADING INDEX

Industry Almanac

RECOMMENDATION CHANGE

DOWNGRADED FROM BUY TO HOLD: **Comshare, Inc.** (The Chicago Corp.). Comshare's (CSRE) decision to shift from a mainframe- to a local-area network-based product strategy — combined with a lack of software for **Microsoft Corp.**'s Windows — will drag down fiscal fourth-quarter earnings. Mainframe licenses of Commander EIS, the company's flagship product, could slip nearly 30% this year.

The company is counting on an OS/2 edition of Commander EIS, expected this summer, and a new version for Windows, due out in October, to pull up earnings next year.

ANALYSIS IN BRIEF

"Chip Makers' Seasonal Outlook"
Michael Gumport
Shearson Lehman Brothers, Inc.
June 15

Semiconductor stocks tend to rally late in the year and plunge in July. Five major chip makers' stocks — **Advanced Micro Devices, Inc.** (AMD), **Intel Corp.** (INTC), **National Semiconductor Corp.** (NSM), **Texas Instruments, Inc.** (TXN) and **Motorola, Inc.** (MOT) — have dropped an average of nearly 40% for the past 11 consecutive summers.

Meanwhile, The Semiconductor Industry Association said that U.S. chip demand will pick up about 12%, but not until late 1992. That surge could translate into a 30% rise in share prices through early 1993. In other words, chip stock prices look grim in the near term but promising for later this year.

LISA DAVIDSON and KIM S. NASH

Shearson says . . .
Current investment ratings from Shearson Lehman Brothers

AMD	Avoid
Intel	Neutral
Motorola	Buy
National Semiconductor	Neutral
TI	Buy

Computerworld Friday Stock Ticker

CLOSING PRICES FRIDAY JULY 10 1992

TOP PERCENT GAINERS

Ross Systems (L)	32 65
Fibronix Int'l Inc	25 00
Mentor Graphics (L)	23 33
Conner Peripherals*	15 50
Printronix Inc	15 00
Micropolis Corp	11 76
Sierra Semiconductor	11 71
Xilinx	11 64

TOP PERCENT LOSERS

Microcom Inc (L)	-40 38
Micrografx Inc	-32 20
Meca Software (L)	-26 09
Filenet Corp (L)	-25 00
Gateway Communications (L)	-25 00
Symantec Corp	-20 67
AI Corp (L)	-20 00
American Mgmt Systems* (H)	-15 97

TOP DOLLAR GAINERS

Digital Equipment Corp*	3 88
Bellsouth Corp	3 00
Conner Peripherals*	2 75
American Info Techs Corp*	2 50
Policy Management Sys	2 25
Xilinx	2 13
Banctec Inc	2 13
Ross Systems (L)	2 00

TOP DOLLAR LOSERS

Symantec Corp	-7 75
Filenet Corp (L)	-4 88
Matsushita Electronics	-4 88
Parametric Technology	-4 75
Micrografx Inc	-4 75
Chipcom Corp	-3 00
American Mgmt Systems* (H)	-2 88
Microcom Inc (L)	-2 63

Exch	52-Week	Range		July 10 Close	Wk Net Change	Wk Pct Change
Communications and Network Services						**Off 1.77%**
OTC	15 50	6 75	3COM Corp*	10 00	-0 50	-4 76
NYS	68 50	56 25	American Info Techs Corp*	66 50	2 50	3 61
NYS	44 63	32 88	AT&T*	43 75	-0 13	-0 28
OTC	4 25	1 00	Artel Communication Corp	1 50	-0 13	-7 69
NYS	50 63	40 25	Bell Atlantic Corp	46 63	1 88	4 19
NYS	52 75	43 38	Bellsouth Corp	52 75	3 00	6 03
NYS	7 63	4 28	Bolt Beranek & Newman (L)	4 25	-0 38	-8 11
NYS	65 88	38 63	Cabletron Systems	48 75	0 25	0 52
OTC	31 00	14 50	Chipcom Corp	22 50	-3 00	-11 75
OTC	49 25	17 38	Cisco Systems Inc (H)	48 75	-1 00	-2 09
OTC	35 25	12 75	Compression Labs Inc	13 63	0 63	4 81
OTC	3 38	0 88	Data Switch Corp	1 50	-0 13	-7 69
NYS	23 63	12 38	Digital Comm Assoc*	18 50	0 75	4 25
OTC	17 75	8 50	Digital Systems Int'l Inc	8 50	-0 25	-2 86
OTC	7 38	3 63	DSC Communications	4 75	0 13	2 70
OTC	10 88	4 75	Fibronix Int'l Inc	6 25	1 25	25 00
OTC	37 50	10 50	Filenet Corp (L)	14 63	-4 88	-25 00
OTC	3 38	1 13	Gandalf Technologies Inc	2 38	-0 19	-7 34
OTC	2 50	0 69	Gateway Communications (L)	0 75	-0 25	-25 00
NYS	5 50	2 13	General Datacomm Inds	3 63	0 00	0 00
ASE	5 88	0 50	Go Video	3 00	0 25	9 09
NYS	35 00	28 13	GTE Corp*	32 88	0 88	2 73
NYS	70 63	50 00	ITT Corp	66 13	1 25	1 93
OTC	36 13	25 25	MCI Communications Corp	31 13	-1 13	-3 49
OTC	14 50	3 88	Microcom Inc (L)	3 88	-2 63	-40 38
NYS	18 25	9 13	Network Equipment Tech*	9 75	-0 88	-8 24
OTC	25 50	6 75	Network General	9 63	0 38	4 05
OTC	20 00	8 50	Network Systems Corp	10 13	-0 75	-6 90
OTC	17 66	5 50	Newbridge Networks Corp	16 38	0 25	1 55
NYS	49 25	34 13	Northern Telecom Ltd*	38 13	1 13	3 04
OTC	65 00	26 00	Novell Inc*	53 75	0 00	0 00
NYS	82 38	65 13	Nynex Corp*	81 00	1 63	2 09
OTC	37 50	16 50	Octel Communications Corp	22 75	0 25	1 11
OTC	6 88	4 50	Penril Data Comm Ntwks	4 50	0 00	0 00
OTC	63 00	21 50	Picturetel Corp (L)	23 00	-2 25	-8 91
OTC	18 75	10 00	Proteon Inc	11 00	0 00	0 00
NYS	24 88	11 63	Scientific Atlanta Inc	24 88	1 50	6 42
NYS	69 00	51 50	Southwestern Bell Corp	63 50	0 63	0 99
NYS	29 75	20 75	Sprint Corp	21 75	-0 13	-0 57
OTC	13 75	3 63	Standard Microsystems Corp	11 38	0 00	0 00
OTC	33 00	14 25	Synoptics Communications	31 63	1 38	4 55
NYS	38 88	32 88	US West Inc	38 88	2 00	5 42
OTC	41 25	21 25	Wellfleet Communications	25 50	0 25	0 85
PCs and Workstations						**Off 0.31%**
OTC	15 25	4 75	Advanced Logic Research	4 75	-0 50	-9 52
OTC	60 00	42 28	Apple Computer Inc*	45 75	-0 50	-1 08
OTC	32 25	12 00	AST Research Inc*	14 00	0 13	0 90
NYS	18 25	6 38	Commodore Int'l	6 38	-0 75	-7 41
NYS	37 50	22 13	Compaq Computer Corp*	25 13	1 50	6 09
OTC	25 00	13 91	Dell Computer Corp	17 50	-0 25	-1 41
OTC	7 75	3 00	Everex Systems Inc	3 38	0 13	3 85
NYS	34 00	21 28	Harris Corp	27 25	0 50	-1 50
NYS	85 00	44 63	Hewlett-Packard Co*	67 75	0 38	0 56
NYS	28 75	14 13	Silicon Graphics	18 38	0 88	5 00
OTC	35 88	20 75	Sun Microsystems Inc*	25 88	0 75	2 87
NYS	31 25	22 38	Tandy Corp* (L)	23 63	0 38	1 61
NYS	11 13	5 13	Zenith Electronics	7 50	0 00	0 00
OTC	25 50	5 25	Zeos International Ltd	6 00	-0 25	-4 00
Large Systems						**Off 0.65%**
ASE	20 63	11 63	Amdahl Corp*	17 00	-0 63	-3 55
NYS	14 00	7 50	Control Data Corp	13 75	0 00	0 00
NYS	16 38	6 38	Convex Computer (L)	6 38	-0 50	-7 27
OTC	19 63	2 88	Cray Computer	3 13	0 00	0 00
NYS	52 25	27 38	Cray Research Inc*	25 75	-0 25	-0 88
NYS	22 50	7 13	Data General Corp	7 63	0 00	0 00
NYS	71 75	33 25	Digital Equipment Corp*	37 50	3 88	11 52
NYS	108 38	81 63	IBM*	97 75	0 88	0 90
NYS	126 00	63 50	Matsushita Electronics	104 63	-4 88	-4 45
OTC	16 75	8 50	Pyramid Technology	10 50	-0 25	-2 33
OTC	17 88	7 50	Sequent Computer Sys	14 88	-0 25	-1 65
OTC	18 38	5 50	Sequoia Systems Inc (L)	6 13	-0 13	-2 00
NYS	54 25	25 75	Stratus Computer Inc*	42 63	-0 38	-0 87
NYS	15 13	6 50	Tandem Computers Inc*	11 50	0 25	2 22
NYS	11 75	3 38	Unisys Corp*	6 88	0 13	1 43
ASE	7 50	2 00	Wang Labs Inc (b)*	3 38	-0 13	-3 37
Software						**Off 1.34%**
OTC	68 50	37 50	Adobe Systems Inc	44 00	-0 75	-1 68
OTC	13 25	3 00	AI Corp (L)	3 00	-0 75	-20 00
OTC	45 50	11 50	Aldus Corp	13 25	0 25	1 92
OTC	18 75	10 13	American Software Inc	12 75	-0 13	-0 97
OTC	20 00	7 50	Ask Computer Systems	10 38	-1 38	-11 20
OTC	57 25	23 25	Autodesk Inc	38 50	1 38	3 70
OTC	37 75	8 25	Bachman Info Systems	11 25	0 75	7 14
OTC	42 50	28 00	BGS Systems Inc	35 50	-1 25	-3 40
OTC	79 00	37 25	BMC Software Inc	42 75	0 75	1 75
OTC	20 50	9 00	Boole & Babbage	17 25	0 25	1 47
OTC	86 75	37 75	Borland Int'l Inc*	38 88	-2 13	-5 16
OTC	11 25	3 88	CE Software (L)	4 00	-0 50	-11 11
ASE	14 38	6 50	Cheyenne Software Inc	10 63	-1 50	-12 37
OTC	20 38	7 25	Cognos Inc	8 25	-0 88	-9 59
NYS	17 00	7 50	Computer Associates*	12 50	0 50	4 17
OTC	21 50	8 25	Comshare Inc	10 00	-0 25	-2 44
OTC	47 88	6 50	Easel Corp (L)	8 00	-0 25	-3 03
OTC	16 50	8 25	Goal Systems Int'l	17 38	0 50	2 96
OTC	25 50	11 50	Group 1 Software	20 00	1 75	9 59
OTC	6 63	3 50	Hogan Systems Inc	4 00	0 00	0 00
OTC	36 25	16 50	Information Resources	24 38	-0 25	-1 02
OTC	38 00	5 50	Informix Corp	25 25	-0 75	-2 59
OTC	27 75	12 50	Intergraph Corp (L)	13 75	0 25	1 85
OTC	15 00	4 88	Interleaf Inc	6 75	0 50	8 00
OTC	20 25	8 50	Intersolv Inc	12 75	0 50	4 08
OTC	30 00	10 50	Knowledgeware Inc	13 00	1 13	9 47
OTC	45 25	20 25	Legent Corp*	33 38	0 88	2 69
OTC	40 75	16 75	Lotus Development* (L)	17 25	-1 00	-5 48
OTC	7 38	2 13	Meca Software (L)	2 13	-0 75	-26 09
OTC	22 25	8 50	Mentor Graphics (L)	9 25	1 75	23 33
OTC	20 50	8 50	Micrografx Inc	10 00	-4 75	-32 20
OTC	88 84	43 34	Microsoft Corp*	69 50	-0 38	-0 54
OTC	21 13	8 38	Oracle Corp*	17 88	1 00	5 93
OTC	41 25	13 00	Parametric Technology	32 00	-4 75	-12 93
OTC	11 00	3 75	Phoenix Technologies (L)	3 88	-0 25	-6 09
OTC	25 28	10 50	Platinum Technology	13 50	-0 75	-5 26
OTC	48 50	27 50	Progress Software Corp	35 75	-2 25	-5 92
OTC	28 63	4 00	Quarterdeck Office Sys (L)	5 00	-0 13	-2 44
OTC	32 75	8 50	Rainbow Technologies Inc	14 50	1 25	9 43
OTC	25 50	8 75	Rasterops	10 88	0 38	3 57
OTC	17 25	5 38	Ross Systems (L)	6 13	2 00	32 60
OTC	28 25	8 25	Software Publishing Corp (L)	9 00	0 13	1 41
OTC	8 50	2 00	Software Toolworks Inc	2 25	-0 13	-5 25
OTC	7 25	1 75	Spinnaker Software	3 13	0 00	0 00
OTC	18 50	6 25	State of the Art	7 88	0 13	1 61
NYS	25 25	11 63	Sterling Software Inc	18 50	0 50	3 13
OTC	30 00	13 00	Struct Dynamics Research	15 50	1 50	10 71
OTC	31 75	15 00	Sybase Inc	24 00	-1 75	-6 80
OTC	61 00	22 50	Symantec Corp	25 75	-7 75	-20 67
NYS	15 50	6 38	Systems Center Inc* (L)	6 38	-0 13	-1 92
OTC	34 25	6 88	System Software Assoc	27 50	-2 00	-6 78
OTC	23 75	15 00	Walker Interactive Systems	17 00	-0 25	-1 45
OTC	6 63	2 13	Wordstar	2 63	0 13	5 00
Semiconductors						**Up 1.65%**
NYS	21 50	7 38	Advanced Micro Devices (L)	8 25	0 50	6 45
NYS	11 13	7 00	Analog Devices Inc	8 63	-0 13	-1 28
OTC	15 13	6 75	Atmel Corp	9 38	0 88	10 26
OTC	14 13	6 00	Chips and Technologies (L)	8 00	-0 63	9 43
NYS	22 63	7 88	Cypress Semiconductor Corp (L)	7 88	-0 50	-5 97
NYS	10 00	6 25	Dallas Semiconductor	10 00	0 88	6 59
OTC	68 75	38 50	Intel Corp*	56 50	0 63	1 12
NYS	9 88	5 88	LSI Logic Corp	6 50	-0 25	-3 70
NYS	22 38	11 13	Micron Technology	13 88	-0 25	-1 77
NYS	83 75	54 00	Motorola Inc*	78 00	1 38	1 79
NYS	11 50	3 88	National Semiconductor*	9 13	-0 38	-3 95
OTC	27 00	12 75	Sierra Semiconductor	15 50	1 63	11 71
NYS	40 50	25 00	Texas Instruments*	37 75	1 75	4 86
OTC	10 50	5 88	VLSI Technology	7 25	0 38	5 45
OTC	12 50	3 13	Weitek (L)	3 25	-0 13	-3 70
ASE	5 63	2 00	Western Digital Corp	4 75	0 00	0 00
OTC	32 50	17 25	Xilinx	20 38	2 13	11 64
OTC	11 50	4 63	Zilog Inc	7 00	-0 25	-3 45
Peripherals and Subsysteme						**Up 1.30%**
OTC	10 00	2 75	Archive Corp	6 75	-0 75	-10 00
OTC	24 50	11 25	Banctec Inc	24 25	2 13	9 60
OTC	23 50	7 00	Cambex Corp	14 00	-0 75	-5 08
ASE	17 50	7 00	Cognitronics Corp	16 13	-0 13	-0 77
NYS	23 88	12 50	Conner Peripherals*	20 38	2 75	15 60
ASE	19 88	3 34	Dataram Corp	12 75	-1 38	-9 73
NYS	18 63	4 88	EMC Corp	16 25	0 75	4 29
OTC	9 38	4 75	Emulex Corp	6 88	-0 25	-3 51
OTC	23 00	14 50	Evans & Sutherland	16 00	1 00	6 67
OTC	40 63	16 00	Exabyte	26 38	1 13	4 46
OTC	27 25	15 75	Intelligent Info Systems	24 25	0 88	3 74
OTC	11 25	4 50	Iomega Corp	5 50	-0 25	-4 35
OTC	34 75	14 50	IPL Systems Inc	16 00	0 13	0 88
OTC	24 50	11 75	Komag Inc	12 25	-0 75	-5 77
OTC	14 00	1 63	Maxtor Corp*	10 75	0 75	7 50
OTC	12 63	5 50	Micropolis Corp	9 50	1 00	11 76
NYS	98 75	83 50	3M Co	86 88	0 88	0 61
OTC	6 75	3 50	Printronix Inc	5 75	0 75	15 00
NYS	28 75	7 25	QMS Inc (L)	7 38	-0 88	10 61
OTC	19 00	8 88	Quantum Corp	14 50	0 88	6 42
OTC	12 28	5 13	Radius Inc	11 75	0 25	2 17
NYS	12 88	5 88	Recognition Equipment	8 00	-0 50	-5 88
OTC	13 13	8 38	Rexon Inc	8 63	-0 38	-3 75
OTC	17 63	7 25	Seagate Technology*	14 63	0 13	0 86
NYS	78 00	28 63	Storage Technology*	31 00	0 38	1 22
NYS	30 88	16 00	Tektronix Inc	18 13	0 38	2 11
NYS	82 25	52 63	Xerox Corp	71 25	1 50	2 15
Services						**Off 0.24%**
OTC	16 00	11 88	American Mgmt Systems* (H)	15 13	-2 88	-15 97
NYS	8 38	2 88	Anacomp Inc	3 50	-0 13	-3 48
OTC	19 00	12 28	Analysts Int'l	17 13	0 63	3 79
NYS	49 00	30 25	Auto Data Processing*	41 25	-1 50	-3 51
NYS	24 18	12 50	Comdisco Inc*	17 13	1 63	10 48
OTC	13 50	7 75	Computer Horizons	8 25	-0 50	-5 71
NYS	84 88	52 25	Computer Sciences*	62 50	0 13	0 20
NYS	10 13	7 00	Computer Task Group	7 25	-0 75	-9 38
OTC	40 50	18 00	CompUSA Inc	26 25	0 00	0 00
OTC	16 25	7 75	Corporate Software	10 00	0 25	2 56
OTC	30 75	12 78	Egghead Discount Software	17 25	0 00	0 00
NYS	33 08	23 18	General Motors E (EDS)*	27 38	-1 50	-5 19
OTC	30 38	8 25	Intelligent Electronics	8 00	0 50	6 67
OTC	14 88	2 63	Marcam	6 75	0 13	1 30
OTC	15 75	6 50	Microage Inc	10 00	-0 75	-6 98
OTC	27 50	13 50	Paychex	24 00	0 00	0 00
NYS	73 00	47 25	Policy Management Sys	67 13	2 25	3 47
NYS	43 50	19 63	Reynolds and Reynolds	38 00	1 75	4 83
OTC	32 00	21 25	SEI Corp	23 25	0 13	0 54
OTC	24 38	16 88	Shared Medical Systems	16 38	0 25	1 31
OTC	26 25	13 50	Sungard Data Systems	23 75	0 50	2 15
NYS	4 88	1 13	Ultimate Corp	1 75	0 13	7 69

•Note: Mips was acquired by Silicon Graphics and was removed from our list accordingly

KEY: (H) = New annual high reached in period (L) = New annual low reached in week

* Companies tracked in Computerworld Stock Index

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IN BRIEF

FileNet profits decline

■ **FileNet Corp.** last week said it expected second-quarter earnings to plunge almost 66% — to $600,000 — from the comparable period last year. Revenue for the quarter ended July 5 is expected to come in at $34.5 million, 20% above the like period last year. The document image processing vendor said economic concerns continue to hamper revenue growth, contributing to project delays for about 15% of the company's prospects.

■ Richard Giordanella, president of **Ross Systems, Inc.**, resigned last week after five years on the job. His duties at the Redwood City, Calif., financial applications developer will be handled by Larry Smart, who was named president of North American operations, and Guy Davidson, who heads European operations.

Short takes

■ **SHL Systemhouse, Inc.** and South Korea's **Samsung Group** are forming a strategic alliance that will give the Ottawa, Ontario-based systems integrator access to the Korean market as well as discounted hardware. SHL will provide Samsung with client/server expertise. . . . **Appsoft, Inc.** last week said it has acquired rights to PowerStep, a spreadsheet for Next, Inc. computers from **Borland International, Inc.** . . . **Bachman Information Systems, Inc.** said it is comfortable with Wall Street's earnings estimates, which range between 8 cents and 16 cents a share for its fourth quarter ended June 30. . . . **Kean, Inc.** announced that it posted second-quarter profits of $1.6 million, up slightly from the year-earlier period, on revenue of $24.7 million.

Everex, Northgate nix merger

Direct-mail PC house instead sells 51% stake to investment group

BY CAROL HILDEBRAND
CW STAFF

FREMONT, Calif., and EDEN PRAIRIE, Minn. — Everex Systems, Inc. and Northgate Computer Corp. last week called off their proposed merger, leaving Everex without a partner in the fast-growing direct-mail personal computer business.

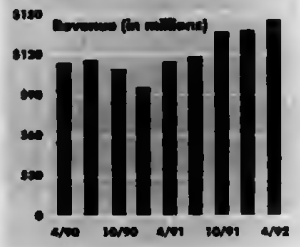
Northgate instead sold a controlling interest in the PC company to Marjac Investments, Inc. in Herndon, Va. Northgate President Gary Held said Marjac was leading a group of investors who will get a 51% stake in the company. Marjac will reportedly also infuse Northgate with $3 million in operating capital.

Northgate and Everex, which signed a letter of intent May 19 for a stock-swap deal valued at about $4.3 million, said last week that both structural and financial constraints kept them from reaching an agreement.

Recent changes in the PC market brought on by Compaq Computer Corp.'s aggressive new products and pricing also played a role, noted Michael J. Whalen, Everex's director of marketing services. He denied that the meltdown of the deal had anything to do with the nosedive that Everex stock took after the announcement.

On the mend

Everex is growing again after slipping in 1990



Source: Prolytix Corp.

"Market conditions are nothing like they were when we decided to pursue the merger," Whalen said.

While Everex still lacks a mail-order distribution strategy, Whalen said, it is going to take a wait-and-see attitude while the market goes through its period of turmoil. Recent company price cuts should make its resellers more competitive, he added.

Don Collier, president of Prolytix Corp. in Santa Barbara, Calif., noted that Everex, which is currently recovering from a rocky financial period, was not in the best shape for a buyout anyway. Cash reserves of about $11 million did not put Everex in a strong buying stance, he said, even with the recent addition of a $72 million line of credit.

Integrator awash in uncollected receivables

BY MARK HALPER
CW STAFF

CHICAGO — Uncertainty regarding defense spending combined with allegedly loose business practices have taken a toll on systems integrator Technology Solutions Co. (TSC), which is scrambling to collect $8.5 million from Northrop Corp. while writing off $3.6 million in uncollected receivables from other customers.

Analysts last week questioned TSC's assertion that verbal commitments are normal modus operandi in the integration business. "It's not for the quality firms, at least not when you're talking about millions of dollars," observed Bonnie Digrius, an analyst at Gartner Group, Inc. in Stamford, Conn. "It was a little loosey-goosey."

TSC's difficulties triggered a lawsuit from shareholders, who accused the company of mismanaging its business by agreeing to do work based on verbal rather than written commitments.

The suit followed a 50% decline one week earlier in TSC's stock from approximately 14½ to 7½ after TSC disclosed its financial difficulties.

TSC last week said it will lay off between 75 and 100 employees, about 15% to 20% of its work force, from the aerospace and defense portion of its manufacturing sector.

In its report for the year and quarter ending May 31, TSC claimed that Northrop had failed to deliver $8.5 million that TSC had logged in its fourth quarter books as revenue.

TSC SAID IT will lay off between 75 and 100 employees from the aerospace and defense portion of its manufacturing sector.

The money, according to TSC, reflected Northrop's financial obligation under a verbal agreement entered in March for a systems integration. A TSC spokesman said the integrator hopes to recover those funds by building charges into future work TSC will do for Northrop, which has been a steady customer of TSC's.

But the spokesman conceded that TSC may not be able to collect the full amount and said, "There's no assurance at all that we'll land a contract with them."

Late discovery

TSC discovered Northrop's $8.5 million shortcoming once the project was two-thirds complete and "we were slipping into the phase where we needed something in writing," the spokesman said. TSC is holding seven of its project managers accountable for $5.3 million in uncollected funds, he said.

Northrop has drastically altered its business practices since President Bush began pushing Congress to phase out Northrop's B2 bomber from the U.S. military arsenal, the TSC spokesman claimed.

TSC's $3.6 million in write-offs includes a $2.3 million charge against smaller aerospace and defense contractors with which TSC also had verbal commitments, the TSC spokesman said.

TSC's year-end net income was $12.1 million, up from $8.5 million the previous year, on revenue of $71 million, up from $52.4 million, according to the company. Revenue for the fourth quarter was $23 million, up from $16 million, and net income rose to $5.5 million from $4.1 million.

Legent, Goal plan to slash 200 positions

BY GARY H. ANTHES
CW STAFF

VIENNA, Va. — Legent Corp. last week disclosed that its merger with Goal Systems International, Inc. will result in a 10% reduction in the work force of the combined company. The cuts will be made across the board but will be deepest in administration and finance, Legent said.

About 200 positions will be eliminated, but fewer people will lose their jobs because some will be moved to other, temporarily vacant positions, a Legent spokeswoman said. The cuts and other cost-saving measures are expected to save the merged company $20 million annually.

THE CUTS AND other cost-saving measures are expected to save the merged company $20 million annually.

Goal, based in Columbus, Ohio, employs 800 people and sells software to support computer operations management, performance management and computer-based training.

Legent, based here, has 1,300 employees and has products in information systems business management, data center operations management, system resource management, network management and software management. The merger of the firms is scheduled to be completed Aug. 3.

Up and down

Separately, Legent said it will report for the quarter ended June 30 net income of $11.4 million on sales of more than $70 million, some 35% higher than the comparable quarter last year.

However, Legent said it will adopt new accounting guidelines for software revenue recognition. When restated to reflect that change, the company will report a 9% drop in earnings and a 3% fall in revenue.

John F. Burton, Legent's chief executive officer, said the merger with Goal is progressing smoothly, with product plans and organizational structure being mapped out.

TRENDS

IS budget control

Users tighten their belts and become more independent as organizations curb IS costs

Here's to the future

In the past three years, IS departments cut costs by reducing staff. If faced with future budgetary pressures, improving productivity will be higher on the agenda.

Past

Top priority

Reduced head count	64%
Reduced budget	60%
Cost spin-off to user organizations	21%

Last resort

Combine data centers	2%
Process improvement	2%
Re-engineering	1%

Future

Top priority

Increase automation/ productivity	73%
Reduce head count	52%
Reduce capital expenditures	48%

Last resort

Outsource	35%
Reorganize	33%
Convert to profit center	12%

Numbers have been rounded
Multiple responses allowed, list includes the first three and last three responses in each category

Doing more with less

Users become more self-sufficient when confronted with IS services cutbacks

Develop own capabilities	51%
Eliminate use	41%
Contract with vendors	22%
No service cutbacks	13%
Slow down development	6%
Improve prioritization	5%
Improve productivity	3%
Other	2%

In the black

Of those respondents who have cut costs during the last three years, 87% view their cost-cutting programs as successful.

Base: 251 CIOs/senior information managers

Source: Gateway Information Services, Inc., New York

NEXT WEEK

Jon Holman left a consulting job to take over as director of technology at the big California law firm of Brobeck, Phleger & Harrison. He consolidated its server investments by installing superservers from NetFrame Systems, a decision that so far has left him — and the law firm — with no complaints. Read about it in Workgroup Computing.

Andy Freeberg

Offloading application development from mainframes to PCs promises productivity jumps of 30% to 40% and lower development costs. But it may not be right for everyone. Read In Depth to help you figure out whether such a move is appropriate for your shop and how to minimize hardware and software costs if you decide to take the plunge.

INSIDE LINES

Over the horizon

▶ Sources close to IBM say its PC group is pointing toward a September announcement of huge proportions. On the list is a revamp for most of the PS/2 line, including Models 50 through 80, a number of new PS/1s, the new PS/Direct line (to be sold through the mail-order channel) and two new notebooks, one an active-matrix color version with IBM's home-grown 386SLC inside it. A similar notebook with the 486SLC2 is slated for release next year.

An in-betweenie

▶ Compaq is planning to slip a couple of high-end notebooks between last month's low-end announcement and the server announcements scheduled for late summer. Both notebooks will feature a 33-MHz 486DX chip and 120M-byte hard drive to start. One will be monochrome; the other will use an active-matrix color screen. Look for them late next month.

No chip 'til its time

▶ Sources close to Intel say the giant chip maker has pushed back the announcement date for its still-unnamed 486 follow-on, the P5. Earlier this year, Intel had said it would announce the chip in late summer, but now it will wait until November, according to well-placed sources. One source cracked that Intel is still trying to figure out a name for the chip — hence, the delay. The announcement delay does not mean that the chip is behind schedule, though: Major vendors have the P5 and are building systems around it, and insiders at vendor firms say they fully expect to show P5-based products at Comdex/Fall '92.

Getting small

▶ AT&T and pen-based operating system maker Go will announce plans today to collaborate on wireless RISC-based portable computers that can send and receive messages, make phone calls, file hand-drawn messages, transmit photos or look up phone numbers. The technology should debut within six months in AT&T-labeled devices the size of a steno pad, to be priced at several thousand dollars, according to AT&T officials.

No bug spray necessary

▶ Microsoft is reportedly working on a project that would allow applications written to the Win32 API set to run on Apple's Macintosh. The program will run on Apple's System 7.0 and allow users to recompile Win32 applications to get an instant Macintosh program. Ironically, the project is code-named Alar, which is the name of an apple pesticide.

Defensive driving

▶ The National Safety Council is on the go — and so might be its IS department. Concurrent with an office move, the Chicago-based organization "will probably" outsource its entire computer operations, according to a source inside the council. However, no final decisions have been made, and it is unclear which outsourcers have bid for the job. Operations currently revolve around a Data General proprietary MV 40000 minicomputer, which the council will retain for "about six months, no more than a year" after changing locales in the middle of this month, the source added.

Thrift doesn't appear to be the watchword at money-losing DG. The company has spent a nice chunk of change beautifying its Westwood, Mass., executive suite with new furniture and window treatments, according to a minicomputer analyst. "Guess they wanted the big guys to look all spiffed up when potential customers came to town," the analyst noted. No doubt at least some would-be DG buyers might be more impressed with a non-red balance sheet instead. Maybe the big iron guys should take a tip from those high-flying box makers over at Dell. The Austin, Texas-based company has cleaned out executive suites and installed standard-issue desks and phones. The executives took a 5% pay cut for the year as well. Phone, fax or CompuServe News Editor Alan Alper with news tips at (800) 343-6474, (508) 875-8931 or 76537,2413, respectively. Or try Computerworld*'s 24-hour voice-mail tip line at (508) 820-8555.*

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